

EXHIBIT 12



**COMMONWEALTH OF PUERTO RICO
PUERTO RICO ENERGY COMMISSION**

**IN RE: PUERTO RICO ELECTRIC POWER
AUTHORITY RATE REVIEW**

CASE NO.: CEPR-AP-2015-0001

SUBJECT: Final Resolution and Order

FINAL RESOLUTION AND ORDER

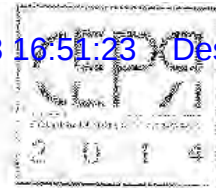


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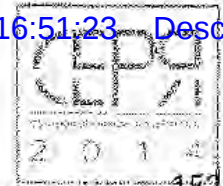


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Executive Summary

With this Order the Puerto Rico Energy Commission ("Commission") takes another step in the long, painful process of providing for Puerto Rico an electric company that excels.

The process is long because the culture and practices arising from 75 years of monopoly status, subject to continuous and shortsighted political interference but with no oversight by an objective, professional and apolitical commission, cannot be changed quickly.

The process is painful because the damage caused by this culture and these practices—damage in the form of deep debt, a deteriorated physical system, demoralized workers, hesitant lenders, skeptical renewable developers and suffering consumers—will require everyone to bear some cost, and make some effort, to solve the problems.

This order is another step because we have already issued five orders that signal to consumers, bondholders, renewable developers and government policy-makers that we are committed to making the difficult decisions, required by the facts we face, to cause the Puerto Rico Electric Power Authority ("PREPA") to emerge from its current crisis and realize its potential.¹ Taken together, these orders, along with today's Final Resolution and Order, seek to produce the fiscal health and professional excellence PREPA needs to satisfy its obligations to its bondholders and its customers.

The purpose of this Order

The specific steps we take in this order are to establish (a) the revenue requirement and rates of the PREPA for fiscal year 2017 (July 1, 2016 through June 30, 2017); and (b) a procedure for updating those rates for the years thereafter. While this Order describes these rates as implementing PREPA's revenue requirement for fiscal year 2017 (abbreviated as "FY2017"), the situation is more complicated, in four respects.

¹ Those orders, each cited and discussed at various points in the current Order, include the **Restructuring Order** (assuring bondholders that participating debt will be securitized and paid off, while guaranteeing ratepayers the benefit of approximately \$867 million in bondholder concessions. See Restructuring Order, CEPR-AP-2016-0001, June 21, 2016 at 2); the **Provisional Rate Order** (which provided PREPA necessary cash flow and thus enabled both utility operations and bondholder negotiations to continue); the **Integrated Resource Plan Final Resolution and Order** (which aligned PREPA's fuel and power plant plans with the Commonwealth's long-term need for fuel diversity, renewable energy and energy conservation); the **Performance Case Order** (which initiated an investigation and audit into PREPA's performance, with the intent of developing new performance standards and holding PREPA accountable for those standards); and the **Transparent Bill Order** (which approved the bill format to be used to clearly identify and present to the customers the charges and credits applicable to them).



1. While the effective date of these rates will be 60 days after this order,² there will be a reconciliation back to August 1, 2016, the date on which provisional rates went into effect.³
2. The first invoice on which customers will see these new rates will be sometime in March or April 2017, because PREPA needs time to calculate the specific rates for each rate class and receive Commission approval of those calculations.
3. Because the rates we establish today are different from the provisional rates, the difference will be reconciled on customer bills over the same number of months during which the provisional rates were in effect, starting when the permanent rates go into effect.
4. These rates will remain in effect until the Commission changes them prospectively.

In addition to setting new rates, this Order issues numerous directives aimed at ensuring that PREPA uses the revenues its customers provide wisely and efficiently. Most important among those directives is this one: PREPA shall treat the revenue requirement established in this Order as a cap on annual spending until the Commission changes such revenue requirement and shall prepare departmental budgets that conform to that cap. There will be no over-spending by PREPA.

Appended to this Order are four attachments showing the details of the Commission's adjusted base rate revenue requirement for PREPA. Attachment 1 (a revision of Smith and Dady Ex. 3) presents a summary of the adjusted base rate revenue requirement. Attachment 2 (a revision of Smith and Dady Ex. 4) presents a summary of the Commission adjustments.⁴ Attachment 3 (a revision of Smith and Dady Ex. 5) consists of 10 pages, each page containing

² As required by Act 57-2014 (as amended by Act 4-2016).

³ Per Section 6.25(d) of Act 57-2014, provisional rates are rates that the Commission approves on a temporary basis until the Commission determines permanent rates. Once the Commission determines permanent rates, it must make those permanent rates effective as of the date the provisional rates went into effect, but also adjust the permanent rates to make up for any difference (above or below) between the provisional rates and the permanent rates.

⁴ Each Commission adjustment is shown in a column. Column A shows the sum total of the Commission adjustments by line item of PREPA's revenue requirement. The amounts in Column A of Attachment 2 are carried forward to Attachment 1, column B. Attachment 2, columns 1 through 10 show each of the Commission adjustments.



the details of a specific Commission adjustment. Attachment 4 consists of two pages and presents a summary of the CILT and Subsidies amounts.⁵

PREPA shall, no later than January 31, 2017, propose a schedule of technical conferences. The purpose will be to provide any necessary clarification of the directives contained in this order and to determine the deadlines for compliance with them.

PREPA's financial and physical stresses

PREPA is experiencing a financial emergency. All three major bond rating agencies (Moody's, Standard & Poor's, and Fitch) give PREPA a credit rating of default or near-default. This situation is not sustainable. Until PREPA's financial situation improves, it cannot borrow new money. If it cannot borrow new money, it cannot repair its deteriorating physical infrastructure, prepare that infrastructure for a future of renewable energy, pay salaries sufficient to attract and keep excellent workers, and modernize its system so as to enable consumers to save money on their electric bills. The path to transforming PREPA into a reliable, cost-effective, environmentally sound and customer-responsive company—a company central to Puerto Rico's economic recovery—must begin with a plan for stabilizing PREPA's finances.

Meanwhile PREPA's physical infrastructure is deteriorating. Years of underspending have left it unreliable and in disrepair, short of experienced staff, at risk of environmental fines and ill-prepared to accept the quantities of renewable energy mandated by Act 82-2010.⁶

Problems in spending and performance

PREPA's officials and consultants describe an inefficient bureaucracy with high absenteeism, overly staffed with non-value-added administrative personnel. There is a shortage of technical expertise and an unacceptable safety record. Procedures for budgeting and spending do not provide sufficient information on individual project plans and completion. On major capital projects, PREPA was often unable to provide basic explanations, work-plans, or other due diligence documentation.

PREPA's infrastructure spending has been based not on actual needs but on company-wide ceilings rooted in political concerns about rate increases. As PREPA's own witnesses

⁵ Page 1 presents a summary of the CILT and Subsidies amounts that were contained in PREPA's filing. Page 2 presents additional detail of CILT and Subsidies. It also reconciles to the Commission adjusted amount for Subsidies that is reflected in the adjusted revenue requirement.

⁶ The Puerto Rico Energy Diversification Policy through Sustainable and Alternative Renewable Energy Act, as amended.



stated: "Historically, there has been political pressure to not increase PREPA's rates in response to cost and investment needs and therefore PREPA has had to sacrifice needed capital expenditures in order to remain solvent and to not run out of cash."⁷ In each major area—generation, transmission and distribution ("T&D"), and customer service—PREPA's budgets dropped from FY2010 to 2016, and especially sharply between FY2014 and FY2015. Among the detrimental effects is the focus on reactive maintenance instead of preventative maintenance and new construction.

Artificial spending caps hide the truth. This Commission is committed to reveal the truth. So must PREPA. In future rate proceedings, PREPA must describe, accurately, the total cost that must be incurred to meet the quality standards to which our citizens are entitled. Total cost means total cost: emergency purposes, preventative maintenance, system improvement, and system expansion.

Some intervenor witnesses argued that PREPA's debt is too high and should be renegotiated downward. PREPA has already obtained from major bondholders a 15% reduction in principal, lower interest rates and a five-year deferral of principal. No intervenor offered evidence on how PREPA could have extracted more. In any event, the Commission has no legal authority to order more negotiations or to adjust the outcome of past negotiations.

The old and new revenue requirements

As Shown on Attachment 1, PREPA proposed a total FY2017 revenue requirement \$3.501 billion. This amount consists of a base revenue requirement of \$2.998 billion, plus the \$503 million Transition Charge to be collected by the PREPA Revitalization Corporation ("PREPARC").⁸ Because the amounts recovered through the Transition Charge are outside the scope of this proceeding, we address in this proceeding only the base revenue requirement.

In this Order we approve a FY2017 base revenue requirement of \$3,413,904,000. That amount consists of the following components:

Operating expenses other than fuel and purchased power: \$694,390,000
Fuel: \$1,117,273,000
Purchased power: \$819,907,000
CILT and subsidies: \$188,726,000
Debt service and coverage (DSC): \$440,146,000
Ratepayer Funding of Capital Expenditures: \$153,462,000

⁷ CEPR-SGH-01-08 at 10. Commission's First Request of Information (June 23, 2016).

⁸ A public corporation and instrumentality of the Commonwealth of Puerto Rico created by Act 4-2016, known as the Puerto Rico Electric Power Authority Revitalization Act.



The total Capital Expenditures is \$279,218,000, which is the sum of the ratepayer funding of capital expenditures (\$153,462,000) and the amount recognized in the debt service coverage margin (\$125,756,000).⁹

A significant change to PREPA's proposal is our continuation of the \$15 million spending limit on the Aguirre Offshore Gasport, imposed in our IRP order, and pending a full economic assessment of feasible alternatives.

If PREPA's existing rates (excluding the Provisional Rate) remained unchanged, it would receive revenues of \$3,236,904,000 producing a deficiency of \$177,000,000 on an annual basis. To eliminate that deficiency, this Order increases PREPA's FY2017 revenue requirement by \$177,000,000. With few exceptions, the increase will appear on customers' bills in the form of approximately 1.025 cent/kWh increase in the consumption charge. This is a reduction of approximately 0.274 cent/kWh, or twenty-one percent (21%), less than the Provisional Rate established in our June 24, 2016 Order.

The Provisional Rate referenced above were based on PREPA's projection of a deficiency of \$222,256,000 on an annual basis.¹⁰ Since the Commission now finds a deficiency of \$177,000,000, the difference of \$45,256,000 (annualized) must be returned to ratepayers. The reconciliation will take place starting with the first month the permanent rate will be in effect, for the same number of months the Provisional Rate was in effect.

PREPA shall submit no later than February 15, 2017, as part of its compliance filing, a description of the permanent rate increase for each tariff code and the language it will include in each customer's bill explaining the increase.

Revenue allocation

Once a commission determines a utility's total revenue requirement, it allocates responsibility for that requirement among customer classes, then designs rates that collect the allocated revenue from the customers within each class. In both these efforts, a commission seeks to allocate costs to those who cause them.

The starting point for determining cost causation is a cost-of-service-study ("COSS"). The Commission is fully committed to setting rates that are guided by a COSS in which we have confidence. But the gaps in data, along with the numerous subjective and debatable

⁹ See Attachment 3, page 2.

¹⁰ For purposes of this base rate order, the Commission is using an amount of \$222.256 million as shown on Attachment 1, column A, line 34 as the PREPA-claimed base rate revenue deficiency. The Commission's June 24, 2016 Order on Provisional Rates noted an amount from PREPA's Application of \$222,256,790 and referred to the provisional rate increase for brevity in that Order as approximately \$222 million. See, e.g., June 24, 2016 Order at 2, footnote 3.



judgments in PREPA's COSS, leave us without confidence that PREPA's COSS describes cost causation accurately. During 2017 the Commission will work with PREPA and intervenors to solve these problems.

In the meantime, we must set rates. A disciplined, credible COSS should be an input to revenue allocation, but it is only one consideration. Commissions typically vary from the COSS based on such considerations as gradualism, inter-class equity and concerns about retaining major loads. Indeed, PREPA's proposed revenue allocation itself deviated markedly from its COSS. Under these unusual and unavoidable circumstances, the Commission will allocate the revenue increase on an equal cent-per-kWh basis with one exception. That exception, relating to two major independent power producers, is discussed in the main text.

Rate design

When setting rates for customers within customer classes, commissions again are guided by something called a marginal cost study. Prices that tend toward marginal cost provide more efficient price signals than prices that do not. We again had concerns about PREPA's marginal cost study, including its estimates on fuel prices, renewable energy costs and the need for infrastructure investment. We will address those concerns in coming months. In the meantime, we will reject PREPA's request to raise the fixed charge for non-subsidized GRS customers from \$3.00 to \$8.00, in favor of setting the charge at \$4.00. We will retain the slight differential in residential customer per-kWh rates between consumption below and above 425 kWh. We will retain the current time-of-use rates and reject PREPA's request to raise demand charges for industrial and commercial customers, while allowing PREPA to offer a load-retention tariff for large customers that might otherwise depart, shifting costs to others.

We reject PRASA's request for a 16 ¢/kWh preferential rate under Act 50-2013.

Due to the complexity of revenue allocation and rate design, we will hold a separate proceeding in 2017 to explore these issues in greater depth.

Net-metering

Customers without generation behind the meter take all their energy from PREPA. The energy delivered to the customer from PREPA is defined as *inflow* in the Restructuring Order. In addition, net-metering customers also provide energy to PREPA, which we termed *outflow* in the Restructuring Order.

Typically, a net-metering customer will experience outflow in some hours of a month, and inflow in other hours. It is our intention that each customer be billed monthly for the sum of the inflow over the metering intervals with net inflow, and be credited for the sum of the outflow over the metering intervals with net outflow.



The manner in which the Transition Charge is to be collected from all ~~net-metering~~ customers was decided and explained in the Transition Charge proceeding.¹⁴ Those dispositions remain unaltered. The treatment of net-metering customers regarding all PREPA's charges is presented below.

For **outflow** from **non-grandfathered** net-metering customers, there shall be a credit equal to the sum of the customer's base rate energy charge; the fuel charge; the purchased-power charge; and the subsidies for Hotel Discount, Downtown Commerce, Churches analog, rural aqueducts, GAS, Condominium Common Areas, and irrigation district; and the Act 73 Tax credit. These items are, or are akin, to normal utility costs (which net-metering customers are already allowed to avoid).

For **outflow** from **non-grandfathered** net-metering, the credit **shall not** include: CILT, the energy efficiency charge (when created), public lighting subsidy, the Energy Commission assessment, and all the items denoted as "help to humans" during the technical hearing: life-preserving equipment, LRS Tariff, RH3 tariff, residential fuel subsidy, and the fixed public housing rate (RFR tariff). These items are mostly social commitments—things that benefit the public as a whole, including net-metering customers.

For **outflow** from **grandfathered net-metering customers**, the credit shall be the sum of: Base Rate, fuel charge, purchased power charge, all items in the Subsidy Rider, CILT, and energy efficiency charge.

For **inflow**, each net-metering customer shall pay the full rate for its class, including the base rates, fuel charge, power purchase charge, CILT charge, full subsidy charge, and energy efficiency charge.

We reject PREPA's proposal to exclude low-income customers from opportunities to engage in net-metering.

Future rate-setting

For purposes of setting future rates, the Commission adopts three distinct procedures, each designed to impose discipline on PREPA's spending.

1. A "three-year rate case" will review PREPA's cost-reduction efforts, the physical condition of its system and its prior and prospective budgets for each major department. With that information, the Commission will establish a new revenue requirement, a new cost of service, a new revenue allocation and a new rate design.

¹⁴ See Restructuring Order, Docket No. CEPR-AP-2016-0001, June 21, 2016, at 71-84.



2. In each year between each three-year rate case, the Commission will conduct a series of "one-year budget examinations." There the Commission will examine PREPA's proposed departmental budgets for the coming fiscal year, compare them to the prior year's budgets, then use that information to establish a just and reasonable revenue requirement for the fiscal year beginning on the upcoming July 1. This updated revenue requirement will reflect (a) all feasible cost reductions that have been implemented in the prior year, along with those cost reductions that must be implemented in the next year; and (b) any known and measurable changes that we expect to occur in the upcoming fiscal year.

3. For FY 2018 (which begins July 1, 2017) there will be a special procedure to address any amendment to the approved FY2017 revenue requirement necessary to reflect expected FY2018 actions.

In the next few weeks we will hold a technical conference to develop with PREPA a procedure that achieves the necessary synchronization between budgeting and revenue requirement. PREPA shall have no expectation of spending more than its approved revenue requirement, then charging ratepayers for the excess. Nor will we repeat—ever again—the experience of this FY2017 rate proceeding, in which PREPA's consultants offered a revenue requirement having no visible connection to actual department budgets.

PREPA's corporate structure

PREPA formed PREPA Holdings in 2009 as a wholly-owned subsidiary. PREPA Holdings is a limited liability company which in turn owns three other subsidiaries: PREPA Networks, LLC; Consolidated Telecom of Puerto Rico, LLC; and InterAmerican Energy Sources, LLC.

Because of these subsidiaries' small size relative to PREPA, their effects (positive or negative) on PREPA's financial condition will be infinitesimal—provided the subsidiaries remain at their present size. If, however, any one of those companies undertakes a substantial expansion or a large construction project and requires a significant capital infusion, the risk of financial harm to PREPA rises. On the benefit side, PREPA argued that it benefits from its subsidiaries' knowledge of PREPA and that their earnings remain within the PREPA family.

Whenever a monopoly company affiliates with a competitive company there is a risk of harm to the monopoly company's customers and with its affiliates' competitors. To prevent such harm, the Commission is requiring PREPA to provide information about its affiliates' financing and business activities. Other directives, intended to protect consumers and competitors from harm, include these:

1. PREPA shall not create any new direct or indirect affiliates, nor inject further equity into or loan further money to, any direct or indirect affiliate, without informing the Commission at least 30 days before such action is to be taken.



2. PREPA must propose a code of conduct that ensures, to the extent feasible, that affiliate relationships cause PREPA's customers no extra cost and cause PREPA's competitors no unfair disadvantage.
3. Until further notice PREPA shall provide no resources or assistance to, or receive resources or assistance from, any affiliate whose business activities include competing to provide renewable energy facilities. PREPA shall disclose all such resources or assistance that have been provided to date.

Conclusion

The Legislature has directed this Commission to use its full legal powers to transform PREPA into a modern, efficient, customer-responsive utility. This transformation will take time. PREPA will not become more efficient merely because of this Order. Many steps lie ahead—infrastructural, operational, administrative, financial and physical—before customers will see positive and measurable results. Just as paying for our children's education imposes costs today but benefits for a lifetime, so will paying appropriate electricity rates today promise improvements for our future.



PART ONE:

Jurisdictional, Financial and Physical Context

I. The Commission's Jurisdiction, Role and Responsibilities

A. The Commission's jurisdiction

1. Act 57-2014¹² established procedures and standards for evaluating and establishing electric rates to be charged by PREPA.¹³ The entity statutorily created to follow those procedures and apply those standards is this Commission.

2. Section 6.25(a) requires PREPA's rate to be "just and reasonable and consistent with sound fiscal and operational practices which result in a reliable service at the lowest reasonable cost." In evaluating whether a proposed rate complies with the aforementioned requirement, the Commission must take into account (i) the state of PREPA's infrastructure; (ii) the costs it incurs in providing electric services; (iii) its level of debt and debt service responsibilities; (iv) its ability to improve services and reduce costs; (v) the adoption of energy conservation and efficiency measures; (vi) the impact legal requirements (such as subsidies and grants) have on PREPA's revenue needs; and (vii) the input received from intervenors and the general public during the proceeding.¹⁴ To carry out these requirements, the Commission approved Regulation 8720, establishing the information requirements with which PREPA had to comply when submitting its petition for new rates.¹⁵

3. Section 6.25(d) of Act 57-2014 grants the Commission discretion to, within 30 days from the date on which a petition for new rates is filed, approve a Provisional Rate. The Provisional Rate would enter into effect within 60 days from the date the Commission approves such a rate¹⁶ and would remain in effect until new rates enter into effect or until the Commission rejects PREPA's petition. For PREPA's first petition for rate review, Section 6.25(f) requires the Commission to complete its review within 180 days from the date PREPA's request is deemed to be complete. If the Commission fails to make a final determination within said 180 days, the rate proposed by PREPA is deemed approved as a matter of law.

¹² Act 57-2014, known as "Puerto Rico Energy Transformation and RELIEF Act", as amended.

¹³ Sections 6.4(a) and 6.25 of Act 57-2014.

¹⁴ Section 6.25(b) of Act 57-2014.

¹⁵ New Regulation on Rate Filing Requirements of the Puerto Rico Electric Power Authority's First Rate Case. Entered into effect on March 28, 2016.

¹⁶ Unless the Commission determines, it shall enter into effect before this, but never for a period of less than thirty (30) days from the approval of the provisional rate.



B. The Commission's roles and responsibilities

4. In an ordinary rate proceeding, a regulator determines the total revenue needed to provide service, allocates among customer classes the responsibility for paying that revenue, and then establishes rates for each customer class so that, when those rates are paid, the utility receives the revenue it needs from the customer classes responsible for providing that revenue.

5. This is not an ordinary rate case. PREPA faces unique challenges. Although we establish today new rates for electric service, we do not conclude our review of PREPA's operations and performance. This Final Resolution and Order is one of many steps which the Commission has taken, and will continue to take, to transform Puerto Rico's energy market into one that is dynamic and cost-effective. The Commission's responsibilities are not limited to establishing rates. We must also ensure that PREPA's operational performance satisfies our citizens' legitimate needs while its financial performance satisfies investors' legitimate needs. These two Commission responsibilities are mutually reinforcing. Carrying them out successfully is essential to PREPA's success and its customer's well-being.

6. The Commission's responsibility is not to balance conflicting interests, but to align those varied interests with the public interest. Balancing interests assumes a conflict among them, with winners and losers. Aligning interests means establishing a common purpose, and stimulating each industry participant—consumer, investor, worker—to pursue that purpose. With our procedures and our orders, we seek to help our fellow citizens see and share that purpose, so that together we create an electricity industry that serves us all.

7. Imagine a row boat skillfully moving from one end of a lake to another, with all rowers maneuvering in the same direction. It would move from one side of the lake to the other quickly and efficiently, the rowers feeling committed to each other and empowered by their success. Now imagine that same row boat with each rower rowing in their own direction. Empowered by our statutory authority and enabled by our citizens' participation, this Commission will strive to set forth the steps and sacrifices we all need to make to attain the electricity future the Commonwealth deserves: sustainable, efficient, reasonably priced and environmentally responsible.

II. PREPA's financial troubles

A. PREPA's current financial condition

8. PREPA is experiencing a financial emergency. All three major bond rating agencies (Moody's, Standard & Poor's, and Fitch) give PREPA a credit rating of default or near-default. Because PREPA in 2016 lacked sufficient cash flow to meet certain debt repayment deadlines, it had to borrow from its lenders to make its obligatory payments. Based on that fact, Standard & Poor's declared PREPA's debt certain to be in default and lowered its credit rating in June 2016 to D. As of November 2016, Fitch rated PREPA's debt as C, while Moody's rated PREPA's debt as Caa3. All these ratings are "below investment grade."



9. Rather than declare default on their bonds and sue for payment, PREPA's bondholders have been, over the past year, negotiating a financial restructuring.¹⁷ Both Fitch and Moody's have indicated that these ratings could improve (1) if and when PREPA and its creditors reach an agreement on the restructuring of PREPA's debt; and (2) if the Commission supports that restructuring with a rate decision that recognizes PREPA's condition.

10. With one rating agency declaring default and two others awaiting the outcome of bondholder negotiations (while rating PREPA's debt near default and vulnerable to non-payment), PREPA's financial condition is dire. Commission consultant Stephen G. Hill¹⁸ explained that PREPA will no longer be able to borrow to meet its semi-annual principal and interest payments, without a credible plan for restoring its financial health.¹⁹

11. This situation is not sustainable. Until PREPA's financial situation improves, it cannot borrow new money. If it cannot borrow new money, it cannot repair its deteriorating physical infrastructure, prepare that infrastructure for a future of renewable energy, pay salaries sufficient to attract and keep excellent workers, and modernize its system so as to enable consumers to save money on their electric bills. The path to transforming PREPA into a reliable, cost-effective, environmentally sound and customer-responsive company—a company central to Puerto Rico's economic recovery—must begin with a plan for stabilizing PREPA's finances. As Mr. Hill stressed, at the center of such a plan must be rate levels sufficient not only to pay PREPA's debts currently but also to improve its bond ratings to a point where PREPA can once again issue long-term debt at reasonable cost.²⁰

¹⁷ A detailed discussion of the public version of those negotiations is contained in our Restructuring Order issued June 21, 2016 in CEPR-AP-2016-0001. That Order approved a Petition from the Puerto Rico Electric Power Authority Restructuring Corporation ("PREPARC") to establish a "calculation methodology and adjustment mechanism" that will support a "Transition Charge." That Transition Charge will be imposed by PREPARC and collected by PREPA from its customers. As the Commission explained in the Restructuring Order (at ¶ 2), the Transition Charge will reduce costs for PREPA's customers because it implements the participating bondholders' agreement to reduce PREPA's repayment obligation on participating bonds by 15%, lower the contractual interest rate on those bonds and defer any collection of principal for five years. The restructured debt costs will be recovered in a separate charge, which is lower than the costs would be without restructuring. As of this Order's date of issue, negotiations over the debt restructuring are continuing. See also PREPA Ex. 2.0, Direct Testimony of Lisa Donahue, PREPA Chief Restructuring Officer, at pp. 10-12.

¹⁸ Mr. Hill is a financial expert who has testified in over 300 cases involving utility regulation. The majority of his clients have been consumers or agencies obligated to represent consumers.

¹⁹ Hill Report at 14.

²⁰ *Id.*



B. Factors leading to PREPA's current financial condition

12. As with any other utility, PREPA's rates must be sufficient to cover its reasonable costs, including the costs of paying the principal and interest on its loans. From its beginnings in the 1940s until the enactment of Act 57-2014, PREPA had the power to raise its rates on its own. Since 1989, however, PREPA's Board has failed to raise its rates, (except that a fuel adjustment clause and purchased power clause recover increases in those costs). Because of this, as expenses rose PREPA had to borrow to pay them—an imprudent practice that was no bargain for customers, because since 2014 PREPA has been unable to pay its debt costs. PREPA's continuing losses—annual costs exceeding annual revenues—have reduced the Company's assets well below its liabilities, creating a large negative net position.²¹ That trend of negative net income leading to a negative net position began in 2009 and continues today. According to PREPA's monthly unaudited financial report to its Governing Board for June 2016, the current negative net position or cumulative loss is approximately \$1.9 billion.

13. Responsibility for PREPA's current financial straits also lies with a key advisor to the bondholders—the Consulting Engineer. In the 1974 Trust Agreement, which governs all the Revenue Bonds that PREPA has issued, the bondholders required that a Consulting Engineer provide an annual comprehensive review of PREPA, the condition of its generating plants, transmission and distribution lines, its financial condition and, importantly, an analysis of financial projections. The Consulting Engineer should have sounded an alarm during the years of no rate increases, especially when PREPA's expenses exceeded its revenues. This alarm never went off.

14. Worsening the situation was the ongoing recession, which began in 2006, and an insufficient recovery therefrom, causing PREPA's kWh sales (industrial sales, primarily) to decline. With no rate increase, that sales decline widened the gap between PREPA's costs and revenues. Nevertheless, the Consulting Engineer opined in June 2013 as follows:

In the opinion of the Consulting Engineers, the properties of the System are in good repair and sound operating condition. The Consulting Engineers believes the Authority will receive sufficient revenues in fiscal year 2014 with the existing rates to cover current expenses, to make all required deposits in accordance with the 1974 Agreements dictates (sic) and to exceed its 120% debt service coverage requirement. Based on the outstanding debt at the end of fiscal year 2013, the debt service coverage was 138% in fiscal year 2013 and

²¹ "Net position" for a government corporation like PREPA is the difference between the liabilities and assets on its balance sheet.



is forecasted to be 141% in fiscal year 2014, prior to adjustment for planned financings during fiscal year 2014.²²

The Consulting Engineer was wrong. Those "planned financings" never came to pass because by 2014, PREPA and its bondholders had realized that the company could no longer meet its debt obligations and continue to operate. The year 2013, therefore, was the last year in which debt was issued by PREPA (not counting the debt issued to existing bondholders in January and June 2016 to cover principal and interest payments for which PREPA lacked the cash flow). Instead of lending more money in 2014, bondholders reached a "forbearance" agreement in which (1) PREPA would suspend bond payments; (2) bondholders would agree not to declare default and sue; and (3) PREPA would retain a Chief Restructuring Officer to renegotiate the debts, address PREPA's operating problems and try to effect a turnaround.

15. Also wrong was the Consulting Engineer's conclusion that "the properties of the System are in good repair and sound operating condition," as we will detail in Part Two-III.A.2.d of this Introduction. In Part Two-VI we will address the need to reform the role of the Consulting Engineer.²³

To summarize this complex situation, we turn again to Mr. Hill:

The Company, its Board, as well as the Government Development Bank and the Consulting Engineer were unable to sufficiently trim operating expenses to reduce the need for rate increases, were unable to bring revenues in line with expenses through rate increases, did not raise rates when necessary, did not appear to weigh heavily enough the declines in customer base and kWh sales, and thought it appropriate to issue debt in order to make up revenue shortfalls. Any one of those factors could be operationally problematic for a publicly-owned utility, but all of them together have led to a decline in PREPA's financial position and, ultimately, its capacity to provide reliable electric service to the Commonwealth.²⁴

C. The Commission's prior orders relating to PREPA's financial situation

16. In two major orders issued in 2016, the Commission began the task of restoring PREPA's financial health and regaining investor confidence and the public's trust. Taken

²² URS June 2013 Annual Report, PREPA Ex. 3.02(D) Consulting Engineers Report, Fortieth Annual Report on the Electricity Property of the Puerto Rico Electric Power Authority, June 2013 introduction at 3.

²³ In September 2016, the Puerto Rico Commission for the Comprehensive Audit of the Public Credit published a "Pre-audit Survey Report", furnishing more detail on the contributions made by PREPA's management and the Consulting Engineer in contributing to PREPA's current financial crisis.

²⁴ Hill Report at 15-16.



together, these orders, as well as today's Final Resolution and Order, "seek to produce the fiscal health and professional excellence PREPA needs to satisfy its obligations to its bondholders and its customers."²⁵

1. Restructuring Order

17. PREPA currently holds billions of dollars in debt which it is unable to pay at current rates. Raising PREPA's rates sufficiently to pay the principal and interest currently due on that debt would burden Puerto Rico's economy intolerably. Those two situations have left PREPA unable to access capital markets to finance expenditures required to repair and modernize its aging infrastructure. As a result, as we will discuss in Part Two-II.B, the ratepayers of today must start to pay for capital investments needed for tomorrow.

18. PREPA's debt restructuring will consist of issuance of new securitized bonds which would replace or defease most of PREPA's outstanding bonds. These new securitized bonds, known as Restructuring Bonds, will be issued by the PREPA Revitalization Corporation ("PREPARC").²⁶ They will reflect a 15% reduction from their original amount (i.e., their face value), will have a five-year delay in their principal payment, and will bear a lower interest rate than PREPA's current debt, thus reducing the overall costs to PREPA's electricity customers. In exchange for these bondholder concessions, PREPA agreed to have the Restructuring Bonds paid off through a Transition Charge. The Transition Charge, imposed by PREPARC and recovered from customers by PREPA, increases the certainty that bondholders will receive their payments timely and fully. The Transition Charge, while stated separately on customers' bill, does not impose an extra cost; it is a mechanism for reducing cost.

19. On June 21, 2016, the Commission, acting under Article 6.25A of Act 57-2014 and Chapter IV of Act 4-2016²⁷, issued a Restructuring Order.²⁸ That Order approved PREPARC's proposed "calculation methodology and adjustment mechanism" for the Transition Charge. As we stated in the Restructuring Order:

The certainty contributed by a securitized Transition Charge is essential to the restructuring of PREPA's debt and its overall financial health. Without this

²⁵ In Re: Integrated Resource Plan of the Puerto Rico Electric Power Authority, Docket No. CEPR-AP-2015-0002 at 4, ¶ 14.

²⁶ The PREPA Revitalization Corporation is a public corporation created by Act 4-2016 to issue securitized debt which could be exchanged for PREPA legacy debt. The PREPA Revitalization Corporation is separate and independent from PREPA and does not provide electric services.

²⁷ Act 4-2016, known as the "Puerto Rico Electric Power Authority Revitalization Act".

²⁸ In Re: Petition for Approval of Transition Order filed by the PREPA Revitalization Corporation, Docket No. CEPR-AP-2016-0001.



restructuring, it is likely that PREPA would be unable to access new capital funds. Without the ability to access these funds, systems repair would become less frequent, the probability of outages would increase, and rates would need to rise more rapidly (to pay upfront for the system upgrades that otherwise would be funded through long-term debt). PREPA would have less ability to build new infrastructure to accommodate more renewable energy, increase generation efficiency and transition into a modern utility. The Transition Charge, therefore, is more than a mechanism for ensuring payment to bondholders; it is an essential part of the path toward a modern, reliable electric system.²⁹

2. Provisional Rate order

20. Act 57-2014 authorizes the Commission to approve Provisional Rates. A Provisional Rate is a temporary rate that remains in effect while the Commission evaluates PREPA's Petition for a permanent rate. Once the permanent rate is established, the Commission then would require PREPA to credit or recover any difference between the permanent rate and the provisional rate.

21. On June 27, 2016, we authorized PREPA to establish a uniform 1.299 ¢/kWh increase across all customer classes.³⁰ This increase provides PREPA with additional annual revenues of approximately \$222 million—the amount PREPA estimated as its annual "deficiency": the difference between the annual revenue it needed to fund its operations and capital expenditures, and the annual revenue it was collecting from customers under the then-current rates. Without the Provisional Rate, PREPA would have continued to under-collect for the 180 days during which its Petition for permanent rates was under review by the Commission, making its dire financial condition worse.

III. PREPA's physical condition

22. PREPA's physical infrastructure needs help. Years of underspending have left it unreliable and in disrepair, at risk of environmental fines and ill-prepared to accept the quantities of renewable energy mandated by Act 82-2010.³¹ PREPA's own witnesses described PREPA's physical situation to be an "ailing grid,"³² "degraded infrastructure" and a

²⁹ Restructuring Order, CEPR-AP-2016-0001 at 5, ¶ 12.

³⁰ See Provisional Rate Order, CEPR-AP-2015-0001.

³¹ Act 82-2010, also known as the "Puerto Rico Energy Diversification Policy through Sustainable and Alternative Renewable Energy Act", as amended.

³² PREPA Ex. 3.0 at 211-213 (Ms. Miranda).



"deteriorated" transmission system.³³ We summarize here the evidence on outages and interruptions, PREPA's failure to comply with MATS standards³⁴, the resulting costs and the contributors to these problems, and the Commission's solutions as set forth in the Modified Integrated Resource Plan.

A. Customer interruptions and plant outages

1. Key metrics

23. Utilities typically measure system reliability using the standard reliability metrics of SAIFI, SAIDI and CAIDI.

24. SAIFI is the System Average Interruption Frequency Index. It measures the average number of times that a customer experiences an interruption during a reporting period. It is calculated as a fraction: customers interrupted in a period divided by the number of customers served in that period. A SAIFI of 0.33 for a particular year means that one-third of the customers experienced an interruption during that year.

25. SAIDI is the System Average Interruption Duration Index. It measures the duration of an interruption that the average customer experiences during a given reporting period. It too is calculated as a fraction: the total customer minutes interrupted in a period divided by the number of customers served. A SAIDI of 50 for a given year means the average customer experienced 50 minutes of interruption that year.

26. CAIDI is the Customer Average Interruption Duration Index. It measures the average time to restore service; or, more precisely, interruption time endured by the average customer who experiences an outage. It is similar to SAIDI, except that the denominator is the number of customers interrupted instead of the total number of customers. Therefore, the fraction is the total customer minutes interrupted in a period divided by the number of customers interrupted. A CAIDI of 20 minutes for a particular month means that any customer experiencing an interruption that month was without service for 20 minutes.

2. PREPA's reliability: failing its own goals

27. PREPA's current goal for SAIFI is 0.33 interruptions per connected customer per month. On average, PREPA customers experience at least one five-minute outage every month, or a SAIFI of 11.61 per year, twelve times that of the average U.S. customer. PREPA's

³³ PREPA Ex. 1.0 at 80 to 84 (Dr. Quintana).

³⁴ National Emission Standards for Hazardous Air Pollutants (known as the Mercury and Air Toxics Standard or MATS).



goal for SAIDI is 48 minutes per connected customer per month, or about ten hours of outage per year. In recent months, PREPA's actual SAIFI has been closer to 16 hours per year.³⁵

28. These levels exceed those of other utilities. In 2012, the national annual SAIDI measured about 3.33 hours per year, including storm events. PREPA's target—excluding storm events—is about 10 hours per year, above the 75th percentile of utilities.³⁶

29. Even with its less ambitious goals, since January 2013 PREPA has exceeded its targets in 64 percent of the months for SAIDI, 51 percent for SAIFI, and 68 percent for CAIDI.³⁷ Commission consultants Drs. Fisher and Horowitz found that outage duration has been increasing. CAIDI has risen from approximately 140 minutes per month in January 2013 to approximately 180 minutes per month in July 2016.

30. Shifting the focus from customers to plants does not improve the picture. PREPA's "forced outage factor" (the probability that a unit will not be available for service) averaged 6.87% from 2010 to mid-2015 but ended that period at a historic high of 27%.³⁸ As of late 2015, chronic outages have occurred at each of the Aguirre, Palo Seco and San Juan plants.

B. The cost of interruptions and outages

31. Outages cause costs, both short-term and long-term. In the short term, PREPA must use less efficient diesel backup units as replacements for non-functioning plants. In FY2015 and FY2016, PREPA doubled its use of distributed generation turbines and tripled its use of the diesel Aguirre combustion cycle (CC) plant.³⁹ And to ensure reliability in the face of unpredictable outages, PREPA must place more plants on "spinning reserve" to avoid customer interruptions.⁴⁰ Over the long run, PREPA's forced outages require it to shift funds to system restoration and away from fundamental improvements.

³⁵ Fisher-Horowitz Report at 34-35.

³⁶ Larsen, P.H., K.H. LaCommare, J.H. Blo, and J.L. Sweeney, *Assessing Changes in the Reliability of the U.S. Electric Power System*, Lawrence Berkeley National Laboratory at 9, August 2015. Last accessed January 9, 2017, https://emp.lbl.gov/sites/all/files/lbnl-188741_0.pdf. Provided as Exhibit Fisher and Horowitz, Exhibit 03.

³⁷ CEPR-MC-01-011(b)(i)-(iii) at 2. Commission's Fourteenth Request of Information (September 30, 2016).

³⁸ CEPR-JF-01-16 Attach 01. Forced Outage ("FO") Analysis: Business Case at 3, Public version. Commission's Sixth Request of Information (July 29, 2016).

³⁹ CEPR-AH-03-07 Attach 01 at 5. Commission's Seventh Request of Information (August 12, 2016).

⁴⁰ PREPA Ex. 3.0, ll. 367-71.



C. Contributors to the problems

32. PREPA's outage problems have three sources: deferred maintenance; reduced capital spending; and a shortage of expert staff.

1. Deferred maintenance

33. Plants need regular maintenance and overhauls. PREPA has attributed its outages to a practice of delaying maintenance and overhauls, along with budget constraints that lead to delays in and avoidance of necessary inspections, maintenance and repairs.⁴¹ PREPA also has delayed investing in major repairs at Aguirre, in favor of waiting for the gas conversion that will accompany the proposed Aguirre Offshore Gas Platform—which itself is delayed (as discussed in Part Two-ILC.3 below).⁴² And according to the Consulting Engineers' 2013 Report, PREPA adopted a policy of avoiding overtime for scheduled outages—a decision that has extended outage duration and reduced plant availability.⁴³

34. As parts fail, generating units become unavailable. A failure to invest in maintenance thus leads to increased outages. Drs. Fisher and Horowitz found that the availability of PREPA's generation units has declined with spending in Operations & Maintenance. The problem is not confined to the generation system:

[D]ue to limited capital, transmission investments were selected based primarily on the immediate impact upon system reliability of a failure to invest. Thus, PREPA invested in transmission projects that helped to alleviate or mitigate operational congestion problems, system overloads, and voltage regulation problems at the bulk transmission and sub-transmission level. When under significant capital constraints, such investments are the most urgent and failure to make them has the most immediate and unavoidable potential consequences.⁴⁴

PREPA states, on its part:

[T]he physical structural/mechanical and electrical deterioration of critical components in the transmission and sub-transmission lines have directly caused significant grid outages and service interruptions. Physical access to repair or replace structures is very difficult, which consequently means that in

⁴¹ Fisher-Horowitz Report at 29.

⁴² *Id.*

⁴³ URS June 2013 Annual Report at 57.

⁴⁴ CEPR-JF-01-01(a) at 3. Commission's Sixth Request of Information [July 29, 2016].



addition to the long service interruptions, the system is exposed to the potential risk of multiple contingencies and cascading outages.⁴⁵

2. Staff availability and experience

35. Forced outages are due in part to "skilled labor leaving operational roles and not being replaced."⁴⁶ There has been a "loss of significant number of experienced personnel," replaced by "new employees [who] do not have the required expertise and knowledge."⁴⁷ In addition, "technical advisors [are] not always familiar with technology [such as] stator windings at Aguirre, turbine controls issue at Costa Sur and vibrations problems at San Juan."⁴⁸ In distribution in particular, PREPA has suffered a 22% workforce reduction since 2014. As a result, construction crews have been shifted from preventative to reactive maintenance.⁴⁹ The shortage of funds makes it unable to execute a well-planned preventative maintenance program.⁵⁰

3. Declining capital investments

36. Dr. Quintana, PREPA's Executive Director, stated it clearly: "Insufficient revenues ha[ve] led to degradations of PREPA's infrastructure."⁵¹ He added: "[H]istorically low investment in capital expenditures has led to more than twice the number of forced outages than the U.S. industry standard."⁵² Consider this statement from PREPA's director of transmission and distribution:

The fact that we have had capital constraints and haven't been able to replace and construct many of our transmission lines is a problem here. The fact is that we are facing a high level of deterioration of the system. Just to give you an idea, in the first 110 days of this fiscal year, we have faced 38 major transmission line outages. And when I say 38, we mean that in all of those

⁴⁵ CEPR-AH-02-01(d). Commission's Sixth Request of Information (July 29, 2016).

⁴⁶ PREPA Ex. 3.0, ll. 367-368.

⁴⁷ CEPR-JF-01-16 Attach 01, at 6. Commission's Sixth Request of Information (July 29, 2016).

⁴⁸ *Id.* at 7.

⁴⁹ CEPR-RS-03-03 at 9. Commission's Sixth Request of Information (July 29, 2016).

⁵⁰ *Id.*

⁵¹ PREPA Ex. 1.0 at 4.

⁵² *Id.* at 313-315.



outages we had a high risk of conductors on the floor. That's the type of situation that we're facing right now.⁵³

D. PREPA's MATS compliance problems

37. In 2012, the U.S. Environmental Protection Agency ("EPA") issued the National Emission Standards for Hazardous Air Pollutants (also known as Mercury and Air Toxics Standard, or MATS).⁵⁴ This rule restricts mercury emissions from solid fuel- and fuel oil-fired power plants. It requires uncontrolled or inadequately controlled coal- and oil-fired power plants to install and operate (or upgrade existing) environmental controls by April 2015 (extended to April 2017 for certain plants exempted due to reliability needs). Violations trigger penalties.

38. PREPA's fleet is vulnerable. Fourteen of its units, comprising about 2,900 MW of oil-fired capacity (over half of PREPA's nameplate capacity), are subject to MATS. For many of these units, PREPA is hoping to avoid penalties by invoking two exemptions.

39. The first exemption is called "limited use." Units that operate below an eight percent capacity factor can be designated as "limited use."⁵⁵ These units act mostly either as backup or peakers,⁵⁶ thus limiting their emissions. In the IRP proceeding, PREPA revealed plans to designate eight steam units as "limited use," starting in April 2015. But due to outages in other plants, PREPA in the past year has used these steam units more than the "limited use" designation allows.⁵⁷

40. The second exemption is for simple-cycle and combined cycle ("CC") stationary combustion turbines ("CTs").⁵⁸

41. To handle compliance for the remainder of its fleet (*i.e.*, the portion other than the limited use units, the CCs and the CTs), PREPA has three options: install stack controls to

⁵³ October 20, 2016 Technical Conference Call Recording at 2:50 on docket No. CEPR-AP-2015-0001.

⁵⁴ See generally <https://www.epa.gov/mats>.

⁵⁵ A unit's capacity factor is a fraction. The numerator is its actual output over a specific period of time. The denominator is the output that would occur if it operated continuously at its full nameplate capacity over that same period of time.

⁵⁶ A backup unit is called on to operate when other units fail. A peaker is used at times of system peaks, *i.e.*, very high total demands on the system.

⁵⁷ PREPA Ex. 3.0, ll. 324-331.

⁵⁸ 77 Fed. Reg. 9309.



limit emissions, find a way to bring natural gas to those units, or retire the units. Early in 2011, PREPA designed a MATS compliance plan around building the Aguirre Offshore Gas Port ("AOGP"), an offshore gasport near Salinas to feed the Aguirre steam and combined cycle units. With this plan, PREPA would convert its largest plant to gas, then expand its facility at Aguirre, thereby allowing much of its remaining fleet to retire. The plan relied on an assumption that (a) AOGP would be built on time; (b) PREPA could keep its "limited use" units to below an eight percent capacity factor; and (c) EPA would allow PREPA to maintain some non-MATS-compliant units until the Aguirre site could be expanded.⁵⁹

42. As detailed in Part Two-III.C.3, AOGP is not on track. Its target service date of 2014 has slipped to 2018. This Commission's IRP order (discussed in subpart III.E below) has limited the spending associated with AOGP, pending a comprehensive and reliable economic analysis.

43. Meanwhile, PREPA's other compliance options are shrinking. PREPA is non-compliant today at many of the same units for which it was non-compliant in 2011. Under current schedules, compliance at Aguirre cannot be achieved until late 2018 at the earliest. With the AOGP delays, overall system compliance under PREPA's current plans may take until 2022 or later.⁶⁰

E. The Approved Modified Integrated Resource Plan

44. Prior to Act 57-2014, PREPA's long term planning was distorted by political considerations, resulting in operational instability, expensive changes in direction and delays in and stoppages of necessary infrastructure projects. Lack of effective long term planning led PREPA to defer investments in maintenance of and upgrades to its aging infrastructure and to spend customer and investor funds on projects—some later canceled after expensive beginnings—lacking adequate economic or operational feasibility analysis.⁶¹

45. To address this problem, Act 57-2014 requires PREPA to propose, and the Commission to approve, an integrated resource plan ("IRP"). An IRP is a roadmap to providing least-cost, reliable electric service at just and reasonable rates. Using a 20-year time horizon, it identifies the fuel mix, capital investments and maintenance expenditures necessary to ensure safe and reliable operation of PREPA's system, while ruling out projects that are wasteful and unnecessary.

⁵⁹ Fisher-Horowitz Report at 38.

⁶⁰ *Id.* at 39.

⁶¹ See, e.g., PREPA Ex. 2.0 at 5 (Direct Testimony of Lisa Donahue, referring to the "influence of political considerations that have negatively affected PREPA's ability to make effective long-term strategic and management decisions").



46. Acting under Act 57-2014, the Commission on September 26, 2016⁶² issued its Final Resolution and Order on PREPA's IRP. That Resolution and Order approved a "Modified IRP." The Modified IRP established a path for replacing old, costly plants with more efficient generating units, renewable resources, energy efficiency and demand response programs and distributed generation technologies.⁶³ The Modified IRP provides for the modernization of Puerto Rico's energy sector, by moving away from outdated fossil fuel generation and towards cost-effective and environmentally conscious alternatives.

IV. Practical limits on the pace of improvement

A. PREPA's culture

47. For the first time since its creation in 1941, PREPA is now accountable to an independent, professional, fact-based regulator. In creating this Commission, the Legislature intended us to use our legal powers to transform PREPA into a modern, efficient, customer-responsive utility. This transformation will take time. PREPA will not become more efficient merely because of this rate order. Many steps lie ahead—infrastructural, operational, administrative, financial and physical—before positive results will be seen and felt by PREPA's customers. Investments to improve reliability, reduce dependence on fossil fuel, accommodate renewable energy and improve reliability will take years. Just as paying for our children's education imposes costs today but benefits for a lifetime, so will paying appropriate electricity rates today promise improvements for our future. It is to make that promise a reality that this Commission will insist—as it does throughout this Order—that PREPA's spending be subject not only to budgetary rigor but also performance accountability.

48. The transformation of PREPA will require deep commitment not only from bondholders and customers, but also from PREPA's Board, executives, managers, employees and unions. The quadrennial turnover of managers with each new political administration, the political pressures from elected officials to avoid necessary rate increases, the failure of government agencies to pay their electricity bills on time, the irresponsible initiation and termination of expensive capital projects, the high levels of electricity theft, the work rules that prevent efficient use of well-paid employees, the poor recordkeeping and antiquated administrative procedures,⁶⁴ the compensation schemes that prevent PREPA from recruiting and retaining qualified and experienced personnel⁶⁵—all this must come to a halt, to be

⁶² The Final Resolution and Order was issued on September 23, 2016 and notified and filed by the Clerk on September 26, 2016.

⁶³ IRP Final Resolution and Order, CKPR-AP-2015-0002 at 11, ¶ 30.

⁶⁴ We will discuss those details in Parts Two-III and Two-VI.



replaced by a universal commitment to the good of the Commonwealth. This Commission is committed to embodying that commitment.

B. The Commission's constraints and intentions

49. PREPA has not revised its base revenue requirement and rate designs since 1989.⁶⁶ PREPA's rates thus reflect an outdated cost structure bearing little resemblance to PREPA's actual expenditures and its need for revenues. Unsurprisingly, PREPA's cost and budget records are, as of today, not well-suited for the Commission's complex task of establishing rates that reflect costs and budgets accurately.

50. In other jurisdictions, setting utility rates is a standard, predictable, well-understood procedure based on standard, predictable, well-understood accounting records. In this first rate case, nothing was standard, predictable or well-understood. The Commission had to create new procedures and filing requirements, while PREPA had to comply with those procedures and filing requirements using outside consultants who had to contend with PREPA's insufficient accounting materials, budgeting procedures and forecasting methods. The Commission would be less than candid—in a context where candor is necessary—to suggest that this first rate case, resolved within a statutory time period shorter than that available to most jurisdictions, was blessed with precision. As we will discuss throughout Parts Two (the FY2017 revenue requirement), Three (revenue allocation and rate design) and Four (methods for setting future revenue requirements), the absence of reliable cost and budget information was an unavoidable problem—but one that our many Directives in this Order will correct for the future.

51. A distinct problem facing the Commission is the inability to disallow imprudent costs once they have been incurred. We have no doubt that PREPA's current rates are recovering costs that reflect waste and imprudence. Were PREPA a for-profit, investor-owned utility, *i.e.*, a utility whose owners are profit-seeking private shareholders, its regulator would have the practical ability and legal authority to remove those costs from rates, so that they were borne by the shareholders (who hired the executives who made errors) rather than the customers. Such disallowance of imprudent cost is standard practice in the regulation of investor-owned utilities; indeed, it is threat of such disallowance that induces utilities to avoid incurring imprudent costs.

⁶⁵ PREPA's ability to establish modern and effective compensation schemes designed to reward productivity and performance, is limited or prohibited by government laws and regulations. According to PREPA witness testimony at the technical hearing, those limits and prohibitions have reduced PREPA's overall workforce productivity to well below industry standards; indeed, to productivity losses exceeding 30%. We also heard testimony from the Customer Service Director, and the Director of Transmission and Distribution, regarding difficulties in staffing.

⁶⁶ The exception is fuel and purchased power costs. As those costs change from time to time they are recovered from ratepayers through special adjustment clauses.



52. But PREPA is not an investor-owned, profit-making utility. ~~As a public corporation and instrumentality of the Commonwealth of Puerto Rico, it does not have~~ shareholders to bear its unreasonable costs. All of PREPA's costs must be paid by its customers, including those costs which have already been incurred or spent, regardless of their prudence or reasonability. The Commission cannot overstate its regret at having to compose the preceding sentence.

53. But that regret is our stimulus. While the Commission cannot prevent past imprudence, it will use every power it has to prevent future imprudence. It will do so in several ways. First, throughout this Order (and especially in Part Four), the Commission makes clear that future spending must comply with budgets, that budgets must be approved by the Commission, and that PREPA may not overspend its budgets. Second, while the Commission cannot reverse costs from the past, it can and will expose the imprudent actions from the past to determine where PREPA must improve. It will do so in the upcoming performance proceeding.⁶⁷ That investigation will: (a) establish standards and metrics for improvement and excellence; (b) establish the consequences for PREPA and its executives, managers and employees should PREPA not satisfy those standards and metrics; (c) determine, through a third-party investigation, PREPA's ability to achieve the standards and metrics; and (d) identify and prescribe the actions the Commission and PREPA must take to ensure that PREPA develops that ability.

54. In this discussion of the Commission's constraints and intentions, one key question remains: With respect to the prospective (as opposed to the already-incurred) costs that are within the FY2017 revenue requirement we approve, how can the Commission ensure their reasonableness—and has it done so here?

55. In this first rate proceeding, the Commission faced a practical reality: the combination of the short 180 days for this proceeding allowed by statute, and the insufficiency of PREPA's project-specific record-keeping (as detailed in Part Two) made it impossible to conduct a dollar-by-dollar investigation into prudence. The Legislature has required that the Commission use its powers to guide PREPA toward an efficient system at a just and reasonable cost.⁶⁸ But the Legislature could not have meant for this result to appear overnight, or even after a single rate case. This rate case is a step in a transition, but it is only a step. It must be judged in terms of the progress it makes given the information it had; it cannot be judged in terms of the distance it cannot practicably travel. That judgment must take into account these five factors:

⁶⁷ In Re: Notice of Investigation to Identify Opportunities to Improve Performance of the Puerto Rico Electric Power Authority, issued on November 16, 2016; Docket No. CEPR-IN-2016-0002 ("The Commission's long-term goal is to transform the electricity industry on this island to be comparable to the most-efficient, most successful electricity utilities in other jurisdictions—not just by today's standards, but by the standards of the electricity industry as it continues to evolve and progress").

⁶⁸ Statement of Motives, Act 57-2014.



1. The essential message from Drs. Fisher and Horowitz, documented repeatedly in their 200-page report and detailed in Part Two below, was that PREPA's proposed revenue requirement was "too low"; that for several recent years and including FY2017, PREPA had imposed artificial budget caps on its operations, maintenance and capital expenditures that its physical system urgently needs. Consequently, where they found fault with particular costs, such as excess costs in the "administrative and general" (A&G) category, they reduced the allocation in that category and moved the funds into more deserving categories. In the case of AOGP, they recommended removal of most costs because PREPA had failed to show that this option was the least-cost option, and the Commission accepted their recommendation—as explained in Part Two-III.C.3.d.

2. Where the meager information available did allow Drs. Fisher and Horowitz to make judgments about the reasonableness of expenditures, they did, as explained throughout Part Two. In those instances, they found that PREPA's costs were not inconsistent with the costs of typical utilities.

3. As we make clear in Part Four, prospective spending by PREPA must be confined to budget figures that the Commission approves in advance. This approach prevents imprudent costs not yet incurred (and therefore disallowable by the Commission) from being incurred (and thus not practically disallowable by the Commission).

4. Through the numerous reporting directives established in Part Two, and the prospective budgeting procedures established in Part Four, we have the means to identify and prevent imprudent costs before they are incurred.

5. Not a single intervenor identified any imprudent costs. Some argued that PREPA should have won more concessions from the bondholders, but as we explain in Part Two-III.E., that question is beyond our jurisdiction.

56. In sum, the Commission had to use its independence and its expertise to find a reasonable balance among the goals of PREPA's financial stability, the system's dire need of more investment, and the effects on ratepayers and Commonwealth's other relevant policies. The Commission did not defer to PREPA's presentations or its positions. The Commission instead retained its own consultants. They sought and analyzed information through hundreds of requests and several detailed technical conferences. They then submitted five expert reports totaling nearly 500 pages of densely analyzed information, and then appeared to be examined by any party that wished. The Commission itself, prior to drafting this Order, reviewed all that information, and retained an advisor who spent several dozen hours examining under oath all the expert witnesses, including PREPA's top management and key advisors. Based on those efforts, the Commission has modified PREPA's request and found that the resulting revenue requirement and associated rates are just and reasonable.



V. The effect of the rate increase on Puerto Rico

57. Multiple intervenors raised concerns about whether any rate increase is affordable. The most sophisticated argument came from Dr. Cao on behalf of ICSE-PR. He offered a multi-factor regression analysis to estimate the economic impact on Puerto Rico of a rate increase by PREPA. He estimated that a 4.2 cent/kWh increase in electric prices would reduce real GNP in Puerto Rico by 1.05%. Based on that estimated GNP reduction, Dr. Cao estimated a loss of approximately 11,000 jobs, an increase in the inflation rate, and a kWh demand reduction for PREPA of approximately 0.83%.

58. We do not dispute the proposition that higher electric prices can affect an economy negatively. If that were the only consideration, the Legislature would require PREPA to provide electricity for free. But there are other considerations. The first is statutory. The Commission must set rates sufficient to get PREPA the funds to provide reliable service. The second is practical. Until PREPA returns to financial health, it will have no access to new outside capital. Without that access, Puerto Rico faces two choices: continue to make current ratepayers pay for long-term capital expenditures (as explained in Part Two-II.B), or fail to make the investments that are necessary to fix a deteriorated physical system and prepare it for a future of renewable energy. The first choice is painful; the second choice is untenable. Making current ratepayers pay for long-term capital expenditures, rather than allocating responsibility for those expenditures over the long lives of the associated assets, is one of the reasons rates must rise today. Deferring necessary investments will lead to more and longer outages—events no less likely to dampen Puerto Rico's economy than a rate increase. Arguments against the rate increase fail to address the effects of no rate increase. The Commission cannot make that error.

59. Returning to Dr. Cao's analysis: Commission consultant Hill points out that the variables in Dr. Cao's regression model (economic growth in the U.S., the prime rate of interest, the average price of electricity, and a factor that adjusts for serial correlation between variables in the regression) are not the only variables that matter.⁶⁹ Mr. Hill noted that when PREPA's prices dropped due to the drop in oil prices from 2012-2016 (causing PREPA's electricity price to decline by much more than the increase assumed by Dr. Cao), there was not an increase in GNP, employment and kWh sales comparable to the decreases that Dr. Cao's model predicted for a rate increase in 2017.⁷⁰ But the dramatic drop in electricity price produced no economic gains. As shown on Dr. Cao's Table 5-1, the Puerto Rico GNP actually declined from 2012 to 2016 by around 3.4-3.5%. From this data, Mr. Hill concluded that Dr. Cao's "model did not accurately predict the actual changes in economic

⁶⁹ Hill Report at 38-40. That passage is the evidentiary basis for the remainder of this paragraph.

⁷⁰ Dr. Cao's Table 5-1 shows an electricity price of 27.9 cents/kWh in 2012 and 17.95 cents in 2016. That decline is similar to that shown by ACONER witness Previdi. Such data represent a decline 2 to 3 times the increase Dr. Cao used in his model (4.2 cents/kWh).



growth." Mr. Hill also concluded that: "A relatively high correlation of the variables used in the regression [...] does not necessarily imply causation, i.e., the variables selected are not necessarily those that precisely determine the value of the dependent variable (in this case, GNP in Puerto Rico) [...]" Mr. Hill also notes that Dr. Cao did not take into account the effects on Puerto Rico's economy of the continued deterioration of PREPA's physical plant, or the effects on lenders' willingness to lend in the absence of a rate increase. Dr. Cao implicitly assumed that PREPA's quality of service and lender willingness would be unaffected by the absence of a rate increase.

60. While we appreciate the quality of Dr. Cao's contribution to this proceeding, we must look at the full picture. That picture includes the consequences of no rate increase. Those consequences, we have determined, are more negative for Puerto Rico than the consequences of a rate increase. In sum, the arguments against a rate increase ignore its consequences. Without higher rates, PREPA will be unable to make contractual debt payments—even as those payments have been reduced by the bondholders. That means default and lawsuits in the short term, and reduced lender confidence in the long-term. As Mr. Hill explained:

The alternative to allowing a rate increase would be to invite default for PREPA. In that event, the Company would be heavily involved in legal struggles with its creditors, would lack cash flow for maintenance and it is quite likely that electricity service would suffer substantially. [...] If the cost to Puerto Rico of an unreliable electric system is greater than the impact of a rate increase, which I believe is a reasonable assumption, a rate increase would appear to be the preferable choice.⁷¹

⁷¹ Hill Report at 40.



PART TWO: The FY2017 Revenue Requirement

61. The Commission's first task is to establish PREPA's "annual revenue requirement." An annual revenue requirement is the total dollars a utility must receive during a specified future year (called a "rate year") to cover its reasonable expenses (*e.g.*, operating expenses, taxes and depreciation) and to pay the principal and interest on the debt due in that year.

62. In this Part Two we begin by describing PREPA's proposed revenue requirement (Part Two-I). We then address two dimensions of the analytical framework necessary to determine the revenue requirement; specifically, the "test year" and the revenue requirement equation (Part Two-II). Then we discuss the details of the proposed revenue requirement—operating expenses, fuel and power purchase expense, capital expenditures, contribution in lieu of taxes, subsidies, finance costs and income from other sources (Part Two-III). With those details established, we calculated the revenue increase required to cover those expenses (Part Two-IV). Next, we explain how this revenue increase will be reconciled with the provisional rate increase that went into effect in August 2016 (Part Two-V). Finally, we identify necessary improvements in PREPA's financial reporting, to increase our ability to assess PREPA's costs (Part Two-VI).

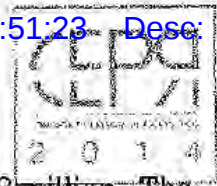
I. PREPA's proposal

63. PREPA originally proposed a total revenue requirement for FY2017 of \$3,501 billion, as shown on Attachment 1. This \$3.462 billion consists of a base rate revenue requirement of \$2,998 billion, plus the \$503 million Transition Charge to be collected by the PREPA Revitalization Corporation (PREPARC).⁷² Because the amounts recovered through the Transition Charge are outside the scope of this proceeding, we address in this proceeding only the \$2,998 billion.⁷³

64. PREPA's original application showed, for FY2017, a "deficiency" (the excess of the proposed revenues over the amounts that would be collected at PREPA's current rates) of approximately \$222 million. In its rebuttal submissions (PREPA Exs. 23.0 and 23.1), PREPA

⁷² The Transition Charge amount includes \$394 million of debt service for securitization and \$109 million for gross-up for the collections lag and uncollectible revenue. These items were detailed in the Commission's Restructuring Order issued on June 21, 2016 in No. CEPR-AP-2016-0001.

⁷³ PREPA originally proposed a total revenue requirement for FY2017 of \$3.462 billion, as shown on PREPA Schedule A-1 REV. This amount consists of a base rate revenue requirement of \$2.958 billion plus \$503 million for Transition Charge to be collected by the PREPARC. However, this total revenue requirement was net of PREPA's Other Income of \$38,925,000. Therefore, PREPA's total revenue requirement, as originally proposed by PREPA, is \$3,501,119,000 (\$3,462,194,000 + \$38,925,000). This result is shown in Column A of Attachment 1.



reduced its proposed deficiency from \$222 million to approximately \$178 million. The \$44 million reduction resulted from the following changes:

1. Removing \$37 million, associated with erroneous double-counting of subsidies. The double-count error occurred when PREPA's consultants included that amount in the proposed revenue requirement twice: once as a direct expense in the "subsidy" line item, and again as an increase in revenue requirement to compensate for the reduction in revenues from the subsidized customer groups.⁷⁴

2. Making equal and offsetting adjustments to Fuel and Purchased Power Expense and Fuel and Purchased Power Adjustor Revenue of \$182.4 million for "removal of 11% gross up."

3. Reducing Bad Debt Expense by approximately \$6.5 million, based on the reduced amount of Revenue Requirement related to the revisions described in (1) and (2).

II. Revenue requirement framework: Test year and equation

A. Test year

65. In utility ratemaking, a "test year" is a prior 12-month period whose actual costs are used as a basis for predicting costs in the "rate year". The "rate year" is the first 12-month period in which the new rates will be in effect. In this first-rate proceeding, the rate year is FY2017: July 1, 2016 through June 30, 2017. To make predictions as accurate as possible, a test year should reflect as closely possible the conditions the utility will face, in terms of costs and sales, in the rate year.

66. PREPA's consultants used a test year of FY2014, because it was the most recent 12 months for which audited information was available. They then adjusted that data in multiple ways to take into account the following factors, among others: the Restructuring Support Agreement (RSA) between PREPA and certain bondholders (the agreement that affects which loans will be repaid through the Transition Charge rather than through the normal revenue requirement), the internal PREPA restructuring efforts (which efforts PREPA says is producing reductions in cost relative to FY2014 costs), PREPA's budgets for FY2015 and FY2016, the actual spending for those two years, and actual spending for the beginning of FY2017.

67. With all these post-FY2014 factors affecting the FY2014 test year costs, it is not clear to the Commission what role the FY2014 data played in establishing PREPA's proposed

⁷⁴ The items that were double-counted were \$524,933 for the General Agricultural Service Tariff; \$16,438,851 for Low-Income Consumer Subsidies (RH3, LRS); and \$20,076,641 for the Fixed Public Housing Rate (RFR Tariff). See Attachment 3, page 4 and Attachment 4, page 2 of 2.



revenue requirement for FY2017. Commission consultants Smith and Dady viewed the FY2014 data as "stale" and "unrepresentative" of the costs underlying a FY2017 revenue requirement:

[V]irtually every line item in PREPA's results of operations for FY2014 has been replaced by PREPA (or significantly adjusted to reflect) PREPA's FY2017 projected results. [...] In other words, other than PREPA using the FY2014 data to set up its revenue requirement insofar as reflecting the various categories in its calculation (e.g., Labor and Non-Labor Operating Expenses, Bad Debt Expense, Debt Service, CapEx, etc.) the audited FY2014 data bears little resemblance to what PREPA is requesting in its filing for FY2017. In essence, PREPA has substituted its budgets and projections for FY2017 for the audited FY2014 results of operations and is using its FY2017 projections as the basis for its proposed revenue requirement.⁷⁵

68. In the absence of current audited data, Smith and Dady relied on the following information to assess PREPA's proposed revenue requirement:

1. PREPA's operating results, unaudited, for the 12 months ended June 30, 2016, as stated on PREPA's Monthly Report to the Governing Board for June 2016.
2. PREPA's approved budget for FY2017.
3. PREPA's business plan (May 2016) and related materials addressing PREPA's efforts to create cost savings.

69. Given the multi-year gap between the FY2014 audited results and the FY2017 rate year—which itself is already half complete—this jumble of data was inevitable. For future rate proceedings, PREPA's test year must be the most recent fiscal year, adjusted for known and measurable changes from that year.

B. Revenue requirement equation

1. Equation options

70. A revenue requirement equation calculates the number of dollars a utility needs in a year to cover the expenditures required to serve its customers at reasonable cost. For a typical utility that is owned by private shareholders, the equation looks like this:

$$\text{Annual revenue requirement} = \text{expenses} + \text{cost of capital}$$

where expenses include operations and maintenance costs (e.g., labor and fuel), taxes, and depreciation; and cost of capital includes (a) interest payments to lenders plus (b) return on

⁷⁵ Smith-Dady Report at 9. Emphasis supplied, citation omitted.



shareholder equity (the latter defined as commission-authorized return on equity multiplied by total equity). In the context of a utility with private shareholders, this equation (which reflects capital from both lenders and shareholders) is often called the "rate base-rate of return" model because capital expenditures become the rate base on which the investors who finance those expenditures earn a return.

71. PREPA has no private shareholders; its owner is the government (such utilities are often referred to as "public power" utilities, to distinguish them from "investor-owned" utilities). Therefore, "cost of capital" in the above equation consists only of principal and interest on PREPA's outstanding debt.

72. For a financially stable utility, the foregoing summary of the revenue requirement equation would suffice. But PREPA's financial condition is not stable. The Commission, therefore, must make adjustments to the equation, specifically relating to capital expenditures.

73. Capital expenditures produce plants and equipment that last for many years. They provide benefits to customers over that time period. In normal situations, *i.e.*, when a utility is financially sound, it finances its long-term expenditures with long-term debt, raised from private investors in the capital markets. The utility's monopoly over its customers makes it a relatively low-risk investment. When an investment risk is low, the interest lenders require to make a loan is low as well.⁷⁶ The utility then pays back that debt, year-by-year over the life of the loan. To have the funds to make those loan payments, the utility sets its rates so that each year it recovers from its ratepayers the amount that it pays to its lenders on a given year. In this way, there is synchronization among four things: the life of the assets financed by the loans, the payments to the lenders, the charges to ratepayers, and the benefits ratepayers receive from the assets.

74. PREPA is not in a normal situation. PREPA must make capital expenditures this year that will benefit ratepayers in future years. But because of its weak financial condition, lenders are not willing to make long-term loans. Therefore, the only source of funds for long-term capital expenditures are today's customers. This reality produces several options for calculating PREPA's revenue requirement for FY2017.

75. PREPA's revenue requirement panel (Pampush, Porter and Stathos) discussed three different possible equations (sometimes called "models"). Commission consultants Smith and Dady described a fourth, hybrid model that follows traditional ratemaking guidelines for public power utilities. Each method is described and assessed here.

⁷⁶ In this context, the term "require" refers to the commercial reality that investors have no obligation to invest in any particular company. Whether lenders or shareholders, they will invest in a company only if their expected returns from that investment match or exceed their "required" returns—the return level that persuades them to invest in a particular company rather than in alternative opportunities.



1. **The rate base/rate of return ratemaking model** (labeled by PREPA's advisors the Accrual Basis approach): This method calculates revenues as

$$\text{Operating Expenses} + \text{Depreciation} + (\text{Rate Base} \times \text{Rate of Return}).$$

This model is widely used in the mainland U.S. to set rates for investor-owned utilities, which finance their capital expenditures with both debt and shareholder equity. While it is used by some public power entities, this model is not appropriate for PREPA, which has negative equity.

2. **The debt service coverage ratio (DSCR) model** (labeled by PREPA's advisors as the Cash Basis approach): This method calculates revenues as

$$\text{Operating Expenses} + (\text{Debt Service} \times \text{DSCR}).$$

It is used regularly in the public power industry. This approach does not work well for PREPA at this time, because it assumes that all capital expenditures will be funded by debt service. As explained above, the capital expenditures PREPA needs to make today will not be financed with new debt because there are no available lenders of new debt. Smith and Dady explained that PREPA can meet some of its capital expenditure needs through the cash flow available from the DSCR, to the extent the DSCR exceeds the 1.20 minimum required by the 1974 Trust Indenture. (Commission Consultant Hill has proposed a DSCR of 1.40, which we adopt and discuss in Part Two-III.E below.) But in FY2017 (and likely several future years), PREPA needs to make capital expenditures larger than the amounts made available by that cash flow. When PREPA returns to financial health, this approach will work well because PREPA will use capital markets to issue debt in amounts sufficient to meet capital expenditure requirements. But for at least this year, a different model is necessary.

3. **The Modified Cash Basis approach:** This method establishes a revenue requirement with this equation:

$$\text{Operating expenses} + \text{debt service} + \text{capital expenditures}.$$

It recognizes the absence of external financing by recovering capital expenditures from ratepayers in the year incurred (rather than spreading recovery over the life of the loan or the life of the associated asset). This method thus differs from the DSCR method because it includes in the current revenue requirement the full amount of capital expenditures that the utility expects to make in the rate year. Its main problem—unavoidable in PREPA's context—is that it creates a mismatch between (a) the time period in which ratepayers pay for the plant and infrastructure (the year in which the expenditures occur) and (b) the time in which the associated utility infrastructure provides benefits to customers (the infrastructure's useful life or, if financed with bonds, the period in which the bond financing would be outstanding). In effect, current customers lend the utility the funds needed for future plant, with no prospect of having those funds repaid. The Commission agrees with



Smith and Dady that this method is available only in PREPA's current circumstances, where it has no access to capital other than from its customers.

4. **The DSCR with Capital Expenditures:** The Commission's advisors, Smith and Dady, recommend a variation on the third option. They label their option "Modified DSCR," or "DSCR with Capital Expenditures." Their formula is:

$$\text{Revenues} = \text{Expenses} + (\text{Debt Service} \times \text{DSCR}) + \text{Additional CapEx.}$$

This method, based on the DSCR method, explicitly accounts for PREPA's dependence on ratepayers rather than capital markets to fund capital expenditures. Revenues are established to cover all operating expenses, plus debt service costs adjusted to account for debt service coverage. The cash flows available from the debt service coverage will be available to fund expected capital expenditures. Then, to the extent that necessary capital expenditures exceed the cash flows available from debt service coverage, an additional amount (termed Additional CapEx in the formula) is included to provide the necessary funds.

76. Smith and Dady caution that their approach is not a permanent ratemaking approach for PREPA; it is a temporary means of deriving an emergency component of the revenue requirement. It should be used only while PREPA lacks access to external financing.

77. Turning to accounting treatment: The additional capital expenditures allowed in this model originate with ratepayers, not investors. If those amounts had originated with investors, then the ratepayer payments reflecting those amounts would be treated for accounting purposes as revenues. But because these funds originate with ratepayers, Smith and Dady recommend, and we agree, that these funds should be accounted for as "contribution in aid of construction." On PREPA's balance sheet, then, this customer-contributed funding of capital expenditures should be an offset to PREPA's investment in plant.

78. PREPA opposed this recommendation, arguing that revenues from customer-funded CapEx included on a dollar for dollar basis should be modeled as operating expense and accounted for as changes to net position, not as contributions in aid of construction. We disagree. First, operating expenses and capital expenditures are ordinarily treated differently in several respects. For example, as discussed in Part Three-III.C.1.a, operating expenses are costs that are incurred in a period and are recognized for accounting purposes in that period. Capital expenditures, on the other hand, are recognized in more than one period.

79. Second, the FERC Uniform System of Accounts ("USoA") requires utilities to follow a particular accounting system and provides specific accounts in which to input capital expenditures and operating expenses. Capital expenditures are treated as Construction Work in Progress (FERC USoA account 107) and eventually as Utility Plant in Service (FERC USoA account 101). In the case of customer funding of a plant (in the form of contributions toward that plant when the plant is initially being replaced or placed into service) is accounted for as credits to FERC USoA account 101, Plant in Service.



80. We see no reason for PREPA to deviate from the accounting treatment of ratepayer funded capital expenditures provided in the FERC USoA. Ratepayers are funding the capital expenditures contained in PREPA's base rate revenue requirement on a dollar-for-dollar basis. Requiring the customer contribution to PREPA's utility plant to be accounted for as customer contributions is appropriate accounting. Accordingly, PREPA will record the amount of ratepayer funding of its FY2017 capital expenditures that is in excess of the DSCR coverage margin as a credit to account 101, Plant in Service.

81. This accounting treatment is not only consistent with the FERC USoA, which PREPA is required to follow, it also acts as an appropriate safeguard to protect customers prospectively from being double-charged for the same capital expenditure investment. The Commission recognizes that ratepayer funding of PREPA's FY2017 capital expenditures on a dollar-for-dollar basis, in the current period, is necessary due to PREPA's inability to access capital markets at a reasonable cost. The Commission intends that this extraordinary ratemaking treatment will only continue to apply until PREPA's financial stability has been restored.

82. The Commission adopts the "DSCR with Capital Expenditures" approach. The application of that approach to PREPA's full revenue requirement is set forth in Attachment 1. Line 24 of Attachment 1 shows \$153.5 millions of ratepayer-funded capital expenditures. That amount is the portion of the full amount not covered by the debt service coverage ratio.⁷⁷

2. Directives

- a. *PREPA shall use the Modified DSCR ratemaking model for purposes of determining PREPA's base rate revenue requirement. This requirement shall apply for FY2017, and for future fiscal years until the Commission finds that PREPA has access to external debt financing on reasonable terms. Once PREPA has regained access to the capital markets on reasonable terms, the Commission will require PREPA to use the DSCR-based ratemaking methodology, under which capital expenditures incurred in a particular year are recovered ratably over the life of the equipment or asset funded by those expenditures.*

⁷⁷ See also Attachment 3, at p. 2, showing the division between the amount of capital expenditure funded through the DSCR and the remaining amount funded by the "capital expenditure" term in the equation.



- b. *While using the Modified DSCR approach, PREPA shall account for the ratepayer funding of PREPA's capital expenditures as contribution in aid of construction.*

III. Specific components of the revenue requirement

A. Operating expenses (other than fuel and purchased power)

1. Overview

83. Operations and Maintenance ("O&M") expense comprises five major categories: generation, transmission, distribution, customer billing, and administrative and general. To project the O&M revenue requirement for each of those areas, PREPA first computed the sum of (1) all projected total O&M labor expense and (2) all projected non-labor O&M expense, then subtracted (3) projected non-fuel savings arising from performance improvements (projected savings were in the following areas: reductions in contributions in lieu of taxes; increased charges for reconnection; reduced theft; improvements in fleet, shops, procurement and inventory; savings from employee attrition; and medical benefit efficiencies). These three steps gave PREPA total O&M expense. For the purposes of its rate case petition, PREPA then allocated this total among the five areas using ratios that each area's spending had to the total operation spending in FY2014. This step produced the following amounts:

Generation:	\$122.4 million
Transmission:	\$34.2 million
Distribution:	\$169.3 million
Customer Billing:	\$84.9 million
A&G	\$148.9 million

84. These amounts (which include labor and non-labor costs) total PREPA's proposed FY2017 operating expense budget (excluding fuel and purchased power) of \$559,752,076.⁷⁸

85. The Commission must decide both, whether PREPA's aggregate operations budget is reasonable and also whether PREPA's proposed operations expenses by functional area are reasonable; specifically, whether they reflect cost-effective operation and management of PREPA's physical facilities, its customer service operations and other activities.

86. Before assessing PREPA's proposals in each of these categories, we discuss the challenges we faced in evaluating PREPA's proposals. Ultimately we approve a FY2017 revenue requirement for all Operating Expenses of \$2,631,570,000, consisting of:

⁷⁸ Sum of FY2017 Non-Fuel O&M Expenses, Schedule E-6 REV; Schedule A-2 REV.



Operating expenses other than fuel and purchased power: \$694,390,000
Fuel: \$1,117,273,000
Purchased power: \$819,907,000

2. Challenges in projecting operating expenses

a. Declines in PREPA's operational spending

87. In each major area—generation, transmission and distribution (“T&D”) and customer service—PREPA's budgets dropped from FY2010 to 2016, and especially sharply between FY2014 and FY2015. Non-labor spending on every area, except A&G, has declined by 28% since FY2010. Beginning in FY2014 PREPA has been underspending its already-reduced budgets: The average portion of PREPA's generation expense budget that went unspent doubled from 4% to 8%; the proportion of unspent customer service budget more than tripled over this period. The T&D area also began to underspend its budgets.⁷⁹

88. As with capital expenditures (addressed in Part Two-III.C), PREPA's operational spending has been based not on actual needs but on overall ceilings rooted in political concerns about rate increases—a fact documented by Drs. Fisher and Horowitz and confirmed by PREPA's officials at the Technical Hearing. These spending patterns coincide with the system's degradation described in Part One-III. As PREPA stated:

[T]he effects of T&D work force reduction (~22% from Jan 2014 to Jul 2016) have been significant on transmission and distribution system maintenance. These effects have been exacerbated by a shortage of funds necessary to execute a well-planned preventative maintenance program. One direct effect of the work force reduction has been the reassignment of multiple construction crews to focus on reactive maintenance instead of preventative maintenance and new construction. [...] These effects have led to the steady decline in transmission and distribution system maintenance and performance across key performance indicators including CAIDI since 2014.⁸⁰

Similarly:

The effect of generation work force reduction (~23% from Jan 2014 to Jul 2016) on generation maintenance has been significant particularly when combined with shortage of funds to use third party labor to perform maintenance activities. The workforce reduction has affected not only the resources that performed maintenance planning/monitoring but also those that executed the maintenance. This resulted in a migration from preventive

⁷⁹ Fisher-Horowitz Report at 198-199.

⁸⁰ PREPA's response to CEPR-RS-03-03 of the Commission's Sixth ROI (August 22, 2016).



focused maintenance to a more basic/corrective focused maintenance to maintain units operating with limited resources and funding. That combined with the departure of critical operational experience from the power plants (not just in maintenance) increases the severity of the problem. Preventive maintenance in older units like PREPA's is particularly critical and if relaxed over a period of time leads to increased frequency and duration of forced outage events as have been noticed in recent times.⁸¹

89. PREPA has cited "[l]oss of a significant number of experienced personnel," "insufficient staff to perform all the necessary maintenance work," and "deferments on paying vendor lead to delay in receiving materials" as key causes of its forced outages.⁸²

b. Increases in A&G spending

90. In contrast to these spending declines on generation, transmission, distribution and customer service operations, PREPA's spending on Administrative and General operations has been increasing. PREPA's non-labor A&G spending has increased by approximately \$50 million since FY2010.⁸³ Indeed, our consultants found that PREPA's spending last year on miscellaneous A&G-related expenses was more than its entire proposed budget for generation expenses in FY2017.⁸⁴

91. Documentation of and explanations for these increases were vague. At the Technical Hearing, PREPA's officials attributed some of this spending to the hiring of restructuring experts and to fees paid to bondholders who agreed to forbear from declaring PREPA in default (PREPA expects a reduction in restructuring costs this year). The Commission recognizes that such experts are costlier than employees, do not represent a permanent increase and are essential to PREPA's transformation. Still, in the future, PREPA must provide more transparency about its A&G costs. We will address the documentation problem later in this Order.

c. Problems in documentation

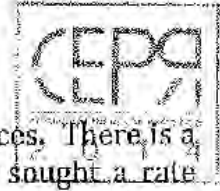
92. In typical rate proceedings, the utility supports its operational expense requests with documentation of planned maintenance and operational activities, expected staffing

⁸¹ *Id.*

⁸² PREPA's response to CEPR-JF-01-16 of the Commission's Sixth ROI (PUBLIC; August 23, 2016). See also CEPR-JF-01-16 Attach 01 (PUBLIC).pdf at 3. Commission's Sixth Request of Information (July 29, 2016).

⁸³ Fisher-Horowitz calculation based on values provided in CEPR-AH-06-13 Attach 01.xlsx of the Commission's Fourteenth ROI (November 7, 2016).

⁸⁴ Fisher-Horowitz Report at 202.



requirements, expected spending levels, and reserves for unplanned occurrences. There is a plan and a budget. PREPA is not in a typical situation. PREPA has never sought a rate increase from an independent commission. As we will show here, its proposed revenue requirement is not well-connected to any plan or budget.

(i) The total budget

93. The proposed revenue requirement results from four inputs: (1) expected labor spending; (2) expected non-labor spending; (3) expected savings from performance improvements; and (4) the allocation of the total labor budget among functional areas.⁸⁵

94. As Drs. Fisher and Horowitz described it, this approach had multiple problems. First, the labor budget figure was not based on an analysis of system needs; it was based instead on assumptions about how many employees would remain with PREPA and how many would leave. It was as if the purpose of a revenue requirement was to pay employees rather than to provide service. Second, savings from improvements consisted of "hard-coded" values—bare numbers for increases in disconnection fees; theft recoveries; and savings in automotive fleet and shops, procurement, inventory management, medical benefits and headcount. PREPA gave verbal explanations, but did not connect those explanations to actual numbers. Third, PREPA also used, but did not justify, an inflation figure of 1%.

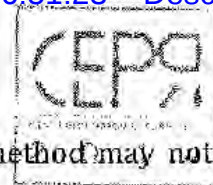
(ii) The allocations by area

95. Instead of allocating dollars according to the activities and costs of each area, PREPA's consultants simply allocated to each area that percentage of the proposed FY2017 total that matched its fraction of the FY2014 total.

96. This approach has multiple problems. As Drs. Fisher and Horowitz explained, there is no reason to think that each area's spending in FY2014 was the appropriate amount for that year; let alone that the FY2014 percentages would bear any resemblance to FY2017 needs. Among other things, the ratio of labor to non-labor expenditures in each area will vary between the two years. Moreover, the assumption that savings from performance improvements would be spread across its functional areas in the same proportions as identified above has no basis in facts or logic.

97. Distinct from the validity of the area-specific numbers is their use. It was not clear whether PREPA views these area amounts as binding budgets for each of the functional areas, or whether these numbers were intended simply to fill cells in the revenue

⁸⁵ Schedules A-1 REV, A-2 REV, and E-6 REV.



requirement spreadsheet. PREPA's consultants acknowledged that their method may not relate in any way to PREPA's actual budgeting process.⁸⁶

98. Drs. Fisher and Horowitz described their frustrating—and frustrated—efforts to gather informational support for these numbers. Vague verbal explanations, work-papers from the wrong years, and circular references prevailed. As they stated: "We are unable to conclude with certainty that PREPA's budget as presented reflects its actual planned operational and maintenance activities in its various functional areas, because we have absolutely no evidence to that effect pertaining to either FY2017 or FY2016."⁸⁷

99. During the Technical Hearing, PREPA's finance director revealed that PREPA does in fact have a bottom-up, by-directorate operations expense budget for FY2017, independent of its by-area allocation of operational expenses in the revenue requirement. PREPA did not disclose this budget to the Commission or its consultants prior to the Technical Hearing. This lack of disclosure had complicated our efforts to evaluate the operational component of PREPA's revenue requirement.

d. Reallocations and adjustments

100. Despite these evidentiary problems, Drs. Fisher and Horowitz found a way to evaluate PREPA's proposal: by comparing it to FYs 2010 through 2014—a period at the end of which PREPA's performance was, according to PREPA's Consulting Engineers, in "good repair and sound operating condition."⁸⁸ Based on this comparison, they recommended several adjustments that would "bring PREPA's operational budgets more in line with historical patterns and closer to what PREPA requires to run as safe and reliable a system as it ran in FY2014 and years prior."⁸⁹ The fundamental assumption underlying this analysis is that the operational cost needed to run PREPA's system safely and reliably has not fallen in the past two years (and may have increased due to the system's deterioration). After the conclusion of the analysis period used by Drs. Fisher and Horowitz, PREPA started a series of performance improvements. Therefore, historical data cannot provide insight into either the success of, or the correct allocation of, PREPA's expected savings from these initiatives. Drs. Fisher and Horowitz instead provided a series of adjustments to PREPA's pre-savings operations budget only. Those adjustments, which we adopt, are described next.

⁸⁶ October 20 Conference Call Recording, Lucas Porter at 3:45:40 on Docket No. CEPR-AP-2015-0001.

⁸⁷ Fisher-Horowitz Report at 195.

⁸⁸ URS June 2013 Annual Report at 55.

⁸⁹ Fisher-Horowitz Report at 205-206.



(i) Reallocation of area budgets

101. Drs. Fisher and Horowitz consultants calculated the average percentages of labor and non-labor spending by each functional area for the period FY2010-FY2014. They did so because (1) that period "incorporates the largest amount of historical data available to us before the point at which PREPA's spending patterns shifted due to its financial constraints"⁹⁰; and (2) the ratio of labor to non-labor spending by functional area was "fairly consistent" during these years. These reallocation factors, they conclude, "more closely match PREPA's actual historical spending patterns during years in which it was running a nominally functional system, especially in the area of non-labor spending."⁹¹ The effects of this reallocation, and associated explanation, are set forth in Tables 32 and 33 of the Fisher-Horowitz Report.

(ii) Adjustments to the reallocated budgets

102. Our consultants then made "corrective adjustments" to these numbers,

to bring PREPA's generation- and T&D-related operational spending more in line with what it appeared to actually require to operate a nominally safe and reliable system, as it did in the period between FY2010 and FY2014. We balance this aim with a desire to avoid unduly increasing PREPA's revenue requirement.⁹²

103. These adjustments are shown in Tables 34 and 35 of the Fisher-Horowitz Report. For generation-related labor spending and T&D-related labor spending, they recommended an adjustment equal to one-third and one-half, respectively, the difference between the FY2017 value and the historical average. For the A&G and Customer Service labor budgets, they made no upward adjustment because "we have seen no evidence that labor shortages in A&G or customer service have negatively impacted the safety or reliability of PREPA's system [...]"⁹³ But they did recommend a reduction in the A&G spending of \$17.7 million because they saw no connection between the growth in the A&G budget and the safety and reliability of PREPA's system.⁹⁴

⁹⁰ *Id.* at 206.

⁹¹ *Id.*

⁹² *Id.* at 210.

⁹³ *Id.* at 211.

⁹⁴ *Id.*



104. For non-labor costs, the consultants benchmarked all categories to PREPA's average spending in fiscal years 2010 through 2014, in part because PREPA has less control over these costs. They then recommended small increases in generation and T&D non-labor expenses.

105. Finally, the consultants made two other sets of adjustments to PREPA's non-labor operational expense budget, as shown in Table 36 of the Fisher-Horowitz Report. First, they added back in planned spending on non-labor categories that did not exist in FY2014 or before: specifically, restructuring fees and safety upgrades. Second, they added the cost of maintenance contracts relating to San Juan and Cambalache units, due to the re-categorization away from capital expenditures discussed in Part Two-III.C below.

106. All these adjustments are displayed in Table 38 of the Fisher-Horowitz report. We adopt those adjustments since they have been supported by expert evidence. In doing so, we emphasize the consultants' acknowledgement of the imprecision in their approach; they (and we) "do not endorse this methodology for PREPA's future budgeting practices."⁹⁵ The by-area operations expense allocations proposed by PREPA are disconnected from PREPA's actual operations budget, leaving us with little confidence that a directive to spend more or less in any given area will be meaningful. Moreover, PREPA's finance director explained that PREPA routinely reallocates funds during the year depending on changing circumstances. This practice makes it very difficult for us to determine actual expected spending levels. However, because the values arrived at by Drs. Fisher and Horowitz are based primarily on actual historical spending patterns, we are able to adopt these recommendations for the purposes of setting an overall revenue requirement for operations expenses on a by-area basis, and for the purposes of establishing values with which to compare PREPA's actual spending in the next rate case. The spending limits we apply below pertain to PREPA's budget irrespective of these expected savings.

107. Due to the lack of sufficient information, Drs. Fisher and Horowitz did not perform an analysis of PREPA's expected savings from operational performance improvements. We will accept PREPA's claimed aggregate performance improvement savings level of \$102,750,000, with the exception of a \$1,711,000 adjustment related to reconnection fees, as discussed below.⁹⁶ Because it reduces the necessary revenue increase it will cause PREPA to stretch to make those savings happen. We do not, however, find, PREPA's proposed allocation of these savings to be meaningful. For the purposes of this rate case, we accept PREPA's chosen methodology of reporting expected savings separately from expected spending, and of determining expected spending levels without taking into account the impact of performance improvements. We find this methodology to be appropriate in this proceeding as PREPA's performance improvement initiatives are in many cases still experimental in nature, as described by PREPA during the Technical Hearing.

⁹⁵ *Id.* at 214.

⁹⁶ See Attachment 3, page 9.



108. Considering the above, we ultimately arrive at both pre-savings⁹⁷ expected spending values, and revenue requirements with savings taken into account. The revenue requirement is what PREPA collects from ratepayers. The purpose of the more granular expected spending values is to enable the Commission to better evaluate PREPA's actual operational spending in the next rate case; they do not affect the rates we set in this case. We record these values here recognizing that PREPA may not achieve its expected performance savings. But given that our approved revenue requirement is a cap on spending, PREPA will need to seek our approval for additional spending should the savings not occur.

(iii) Achievability of spending as adjusted

109. At the technical hearing, PREPA officials stressed that even with sufficient revenues, they might not be able to hire all the employees they need, due to shortages in skilled labor in the Commonwealth, along with PREPA's suboptimal recruiting and hiring procedures. PREPA and its consultants also gave varying answers concerning the extent to which additional funds would enable PREPA to improve the state of its system in the near term. The Commission is not directing PREPA to spend money it cannot spend efficiently. But the Commission does want to assist a transformation in which the revenue requirement displays true needs rather than artificial caps. We emphasize, therefore, that PREPA's spending must be responsible. PREPA should leave funds unspent rather than spend them inefficiently. The Commission will determine the disposition of unspent funds in the next rate case.

110. In accepting our consultants' recommended adjustments, the Commission is increasing PREPA's proposed spending on operational expenses by \$19.4 million.⁹⁷ We allow this increase because of the importance we place on PREPA achieving safety and reliability and because austerity has impeded PREPA's ability to achieve this goal. If PREPA uses these funds, we require PREPA to document how it used them to improve the system and the benefits that spending created, so we can better evaluate PREPA's actual needs in the next rate case.

(iv) Special adjustment relating to reconnection fees

111. PREPA originally proposed to increase its reconnection fees in two respects: first, to increase the fee to reflect the cost of reconnection; and second, to apply a penalty to the customers needing reconnection. PREPA characterized the incremental revenues associated with these increased fees as "performance improvement."

112. Under its current tariff rates, PREPA estimated annual revenues from reconnection fees of \$5.1 million. At its originally proposed reconnection fees, PREPA

⁹⁷ See Attachment 3, page 6.



projected an annual revenue of \$15.3 million.⁹⁸ As explained in Part Three-III.F., the Commission is approving a fee structure reflecting cost only (no penalty). That approved fee structure produces revenue of \$10.647 million.⁹⁹ This information is summarized on Commission Attachment 3, page 9.

113. In its original submission, PREPA treated the incremental revenue associated with the increase in reconnection fees that it expected for FY2017 as a reduction to O&M expense. Specifically, PREPA reflected a \$3.75 million "performance improvement" amount as a reduction to FY2017 operating expenses.

114. PREPA's treatment of the incremental revenue associated with the increase in reconnection fee is incorrect. As indicated in the directive below, in future revenue requirements PREPA shall record the reconnection fee revenue as revenue, not as a reduction to O&M expenses.

115. For purposes of this proceeding, the Commission will adjust PREPA's submission as follows: We need to align the reconnection fees with PREPA's estimated cost of providing reconnection. Doing so reduces PREPA's assumed \$3.75 million non-fuel "performance improvement" (the portion of total performance improvement associated with the reconnection fees) by \$1.711 million.¹⁰⁰ The Commission then allocates this \$1.711 million to the subcategories within FY2017 O&M expenses in the same manner that PREPA originally allocated the \$3.75 million; specifically, according to the FY2014 ratios of those categories.¹⁰¹

(v) Directive

For future filings, PREPA shall record the reconnection fee revenue as revenue, not as a reduction to O&M expenses.

e. PREPA's "benchmarking" study

116. PREPA submitted testimony by Dr. Larry Kaufmann. This submission purported to be a "benchmarking" study showing that PREPA's costs were not too high. Dr. Kaufmann compared PREPA's operational expenses (less fuel and purchased power spending) to those of several "peer" utilities. His comparison led him—

⁹⁸ CRR-05-21(d) at 5. Commission's Twelve Request of Information (September 16, 2016).

⁹⁹ *Id.*

¹⁰⁰ See Attachment 3, page 9.

¹⁰¹ See Smith-Dady Report Table 12, at 34.



to conclude that PREPA's expenses are not being artificially inflated because of inefficient operations or excessive wage payments to PREPA employees. The evidence suggests that PREPA's internal cost management is not the primary factor in PREPA's financial difficulties. The PREPA figures, however, likely reflect downward pressures on spending due to its financial difficulties.¹⁰²

While the last sentence in this quote is true, the rest of Dr. Kaufmann's submittal is not responsive to the question the Commission proceeding must answer: whether PREPA's proposed revenue requirement and accompanying rates are just and reasonable, given its obligation to plan and operate a safe and reliable electric system.

117. Indeed, had PREPA spent the money it needed to achieve this result, its costs might have been far above the levels of its "peers." Dr. Kaufmann's analysis, based on data from years 2008 through 2014, made no adjustment for quality of service. Even if we assume that PREPA's spending through 2014 was fully sufficient for its needs (an assumption which Drs. Fisher and Horowitz disproved), PREPA's costs in the past two years do not represent the spending necessary to operate a safe and reliable system.

118. Comparing the costs of a utility whose performance is poor with the costs of utilities whose performance is good is the ultimate apples-to-oranges error. As Drs. Fisher and Horowitz explained, Duke Florida—one of the "peer" utilities identified by Dr. Kaufmann¹⁰³—reported an adjusted SAIDI goal of approximately 80 minutes per year for 2015. PREPA's SAIDI in 2013 (a year comfortably within Dr. Kaufmann's period of analysis) was, on average, *51 minutes per month*. In other words, PREPA's system is approximately eight times less reliable (based on this metric alone) than Duke Florida's. So what if their costs were comparable?

119. At the technical hearing, Dr. Kaufmann was asked a series of questions designed to determine his submission's value to the Commission. Here are those questions and his answers:

Does your analysis tell us if PREPA's employees are productive relative to their peers in other utilities? No.

Does your analysis tell us if PREPA is using resources cost-effectively? No.

Does your analysis tell us whether Dr. Quintana is doing a good job? No.

¹⁰² PREPA's Petition for Rate Review, Ex. 6.0, Direct Testimony of Larry Kaufmann, IL 532-536.

¹⁰³ *Id.* at l. 191.



Does your analysis tell us whether PREPA's board members are paying adequate attention to the company's welfare? No.

Does your analysis tell us whether PREPA's management, employees and executives are subject to rewards and penalties designed to induce the best possible performance? No.

Does your analysis tell us whether PREPA has negotiated the best possible deal with creditors? No.

Does your analysis tell us whether PREPA is handling interconnection of renewable generators effectively? No.

Does your analysis tell us whether PREPA negotiates effectively with its contractors? No.

Does your analysis tell us whether PREPA costs reflect prudent performance in light of its unique situation? No.

Does your analysis tell us whether PREPA has too much surplus capacity? No.

Does your analysis tell us anything about customer satisfaction? No.

Does your study tell us whether PREPA physical system is in good condition or bad condition? No.

Does your study tell us whether PREPA has been undercharging for service for some period prior to your study's period? No.

Assume that PREPA has been undercharging for service for some period prior to your study's period. Does your analysis tell us whether PREPA will have to increase its revenue for customer in future years to make up for the undercharging in prior years? No.

Are the numbers in your submission adjusted for quality of service indicators? No.

When asked the ultimate question—Is there any proposition that needs to be in the Commission's final order for which his submission would be evidentiary support—his answer was another version of "No."

It is not clear to us that the mismatch between Dr. Kaufmann's submission and what this Commission needed was his fault. He was retained by PREPA's consultant Ralph Zarumba, who testified he sought to address public and media concerns that PREPA's costs were too high. Dr. Kaufmann produced the study he was hired to produce. He answered the Commission's questions straightforwardly and succinctly. He acknowledged his study's



limitations rather than stretch his comparisons to make points they did not support. We do not find fault with Dr. Kaufmann.

120. We do find fault with those who decided to retain him: Mr. Zarumba, and the attorneys for PREPA who made the decision to submit Dr. Kaufmann's testimony. It is the attorney's responsibility to submit only material that will be useful to the Commission. Understanding that responsibility, and acting consistently with it, is especially important where the cost of such erroneous decision-making falls on the customers.

121. Because of this serious error in litigation thinking, the Commission requires that PREPA propose to the Commission guidelines for judging the usefulness of testimony before PREPA incurs the costs to prepare and submit it. Such guidelines shall include procedures by which PREPA and the Commission can ensure that costs incurred by PREPA and charged to ratepayers are costs that help the Commission serve ratepayers. PREPA shall propose similar guidelines for its use of regulatory attorneys. Unless and until PREPA wants to find a source of litigation funds other than its customers, it must show that the value of its submissions will accrue to the customers.

* * *

122. Having described the underlying reasoning for the Commission's decisions on operational expenses, we next describe the specific decisions for each cost area.

3. Generation

123. PREPA proposed Generation Expenses of \$122.4 million. This amount compares with the following amounts from FY2014, FY2015, and FY2016: \$160.5 million, \$145.4 million and \$126.3 million, respectively.

124. Drs. Fisher and Horowitz concluded that PREPA did not properly maintain its generation facilities in FY2015 or FY2016, and that PREPA's FY2017 budget amount for Generation Expense is inadequate for the safe and reliable provision of electric service. They have recommended increases to PREPA's FY2017 Generation Expense of \$9.680 million for Labor and \$4.495 million for non-Labor, for a total FY2017 Generation Expense increase of \$14.175 million.¹⁰⁴ The Commission accepts this recommendation. Their recommended increase to FY2017 Generation Expense of \$14.175 million has been reflected in Attachment 1 (a revision of Smith and Daly Ex. 3).¹⁰⁵

¹⁰⁴ Fisher-Horowitz Report at Tables 34 and 35.

¹⁰⁵ See also Attachment 3 at 6.



125. Additionally, as discussed in conjunction with PREPA's forecast FY2017 Capital Expenditures, Commission Advisors Fisher and Horowitz have recommended that \$16 million for certain maintenance contracts be reclassified from Capital Expenditures to Generation Expense.¹⁰⁶ The Commission accepts this recommendation. Attachment 1 reflects this \$16 million cost reclassification adjustment.¹⁰⁷

Directives

1. *Operating and maintenance (O&M) expenses include standard repairs and maintenance required to keep an asset in operational condition. These types of repairs shall be accounted for in the period incurred—i.e., expensed in a maintenance category. This category shall include repairs that may last more than a year, but shorter than a full maintenance cycle.*
2. *PREPA has not properly maintained its generation facilities in FY2015 or FY2016. PREPA shall increase its FY2017 Generation Expense of \$9.680 million for Labor and \$4.495 for non-Labor, for a total FY2017 Generation Expense increase of \$14.175 million.*
3. *PREPA shall reclassify the contracts listed in Attachment 3, page 2-3, totaling \$16 million from Capital Expenditure to Generation Expense.*
4. **Transmission and distribution**

126. PREPA has proposed Transmission Expenses of \$34.2 million. This amount compares with the following amounts from FY2014, FY2015, and FY2016: \$44.9 million, \$40.7 million and \$35.3 million, respectively.

¹⁰⁶ PREPA opposed this reclassification arguing that such treatment adds a level of complication and potential misrepresentation of how these costs will ultimately be reflected on the books of PREPA. PREPA also stated that these expenses are incurred under long-term service agreement maintenance contracts that have been historically budgeted by PREPA as capital expenditures and that the reason for that treatment is that these contracts are generally used for PREPA's overhaul or "turnaround" maintenance on various components of the generation units. As previously stated, PREPA is required to follow the FERC USoA for Electric Utilities. PREPA's accounting in the past may have been haphazard between capital expenditures and periodic maintenance expenses. As PREPA correctly stated, the reclassification does not impact PREPA's revenue requirement. However, all PREPA's expenditures need to be accounted for in an accurate manner. For this reason, PREPA should not be capitalizing current period maintenance. Therefore, the Commission accepts the recommendation of advisors Fisher and Horowitz that the three maintenance contracts that constitute the \$16 million are appropriately treated as maintenance expense.

¹⁰⁷ See also Attachment 3 at 2-3.



127. Drs. Fisher and Horowitz concluded that PREPA did not properly maintain its transmission facilities in FY2015 or FY2016. They have recommended increases to PREPA's FY2017 Transmission Expense of \$3.330 million for Labor and \$479,000 for non-Labor, for a total FY2017 Transmission Expense increase of \$3.809 million.¹⁰⁸ The Commission accepts this recommendation. Attachment 1 reflects this adjustment.¹⁰⁹

128. PREPA has proposed Distribution Expenses of \$169.3 million. This amount compares with the following amounts from FY2014, FY2015, and FY2016: \$222.0 million, \$201.1 million and \$174.6 million.

129. Drs. Fisher and Horowitz concluded that PREPA did not properly maintain its distribution facilities in FY2015 or FY2016. They have recommended increases to PREPA's FY2017 Distribution Expense of \$16.115 million for Labor and \$2.372 million for non-Labor, for a total FY2017 Distribution Expense increase of \$18.487 million.¹¹⁰ The Commission accepts this recommendation. Attachment 1 reflects this increase.¹¹¹

Directives

1. ***PREPA has not properly maintained its transmission facilities in FY2015 or FY2016. PREPA shall increase its FY2017 Transmission Expense of \$3.330 million for Labor and \$479,000 for non-Labor, for a total FY2017 Transmission Expense increase of \$3.809 million.***
2. ***PREPA has not properly maintained its distribution facilities. PREPA shall increase its FY2017 Distribution Expense by \$16.115 million for Labor and \$2.372 million for non-Labor, for a total FY2017 Distribution Expense increase of \$18.487 million.***

5. Customer billing

130. PREPA has proposed Customer Billing Expenses of \$84.9 million. This amount compares with the following amounts from FY2014, FY2015, and FY2016: \$111.4 million, \$100.9 million and \$87.6 million, respectively. The Commission's advisors recommended no adjustment to this amount. The Commission accepts this recommendation.

¹⁰⁸ Fisher-Horowitz Report at Tables 34 and 35.

¹⁰⁹ See also Attachment 3 at 6.

¹¹⁰ Fisher-Horowitz Report at Tables 34 and 35.

¹¹¹ See also Attachment 3 at 6.



Directive

There shall be no change to PREPA's proposed FY2017 customer service amount.

6. Bad debt expense

131. PREPA proposed Bad Debt Expense of \$85.4 million, in contrast to the FY2014 recorded amount of \$191.5 million. The \$85.4 million is based on an uncollectibles rate of 2.97%.¹¹²

132. To arrive at the \$85.4 million figure, PREPA multiplied the 2.97% uncollectibles rate by the sum of the following costs: (1) fuel and purchased power expense; (2) non-fuel O&M expense; (3) fuel performance improvements (a negative number, because these are savings); (4) CILT subsidy recovery; (5) Energy Administration Assessment; (6) proposed capital expenditures; (7) Debt service; and (8) Other Income.

133. Smith and Dady concluded that the percentage was appropriate, but recommended that we multiply it by a higher total amount due to the increase in fuel expense (discussed in Part Two-III.B below). Doing so (and reflecting other smaller adjustments to the PREPA-proposed revenue requirement) produced an increase to Bad Debt Expense of \$12 million, producing a total of \$97.384 million as shown in Attachment 1.¹¹³

Directive

The revenue requirement for bad debt expense shall be \$97.384 million, resulting from multiplying PREPA's estimated uncollectibles rate of 2.97% by the full amount of PREPA's proposed expenses (as adjusted by the Commission).

7. Administrative and general

134. PREPA has proposed Administrative and General Expenses of \$148.9 million. This amount compares with the following amounts from FY2014, FY2015, and FY2016: \$195.3 million, \$176.9 million and \$153.6 million, respectively.

¹¹² That percentage is the ratio of uncollectibles to Utility Operating Revenue. It is the percentage PREPA says it experienced in FY2016.

¹¹³ See also Attachment 3 at 8.



135. Drs. Fisher and Horowitz expressed deep concern that—

PREPA spent the astonishing figure of \$165 million in A&G in FY2016, of which \$134 million fell into an undescribed discretionary fund. To give this figure context, PREPA spent the equivalent of *more than a third of its entire capital budget* on discretionary A&G spending.¹¹⁴

Drs. Fisher and Horowitz recommend a decrease of \$17.1 million.¹¹⁵ The Commission accepts this recommendation. Attachment 1 reflects this recommendation.¹¹⁶

Directives

1. ***PREPA shall decrease A&G labor expense by \$17.057 million.***
2. ***PREPA shall develop and submit to the Commission a revised monthly report format, providing for greater detail on PREPA's operational budgets, organized by functional area.***
3. ***PREPA shall provide detailed information on the spending within the "miscellaneous" non-labor segment of the Administrative and General functional area. Such information shall distinguish between funds spent to date and funds not yet spent.***

8. Workforce Levels

136. According to PREPA's panel of Miranda, Perez and Sosa, PREPA is having difficulty managing its workforce.¹¹⁷ They state that PREPA is an inefficient bureaucracy with high absenteeism, has an unacceptable safety record, is overly staffed with non-value-added administrative personnel, especially in the executive directorate, and has an oversized executive team. There is also a shortage of technical expertise. Here is what these witnesses stated:

Generally, the team encountered outdated human resource processes that were not conducive to a safe and productive workforce. Among the problems were inflexible work rules and high absenteeism. Paid leave was twice the industry norm at 80 days per year. The retirement system is projected to be

¹¹⁴ Fisher-Horowitz Report at 15 (emphasis in original).

¹¹⁵ *Id.* at Table 34.

¹¹⁶ See also Attachment 3 at 6.

¹¹⁷ PREPA Ex. 3.0 at 31-32. Miranda, who has retired, was a senior executive at PREPA. Perez and Sosa are consultants with Alix Partners.



insolvent by 2024 and needs immediate attention to thwart that result. There also is an unacceptable safety record, with more than 14,000 accidents and 15 fatalities over a 10 year period.

Additionally, PREPA did not have any succession plans with approximately 1,050 staff currently eligible for retirement-many of which are in critical positions. PREPA is currently averaging 350 retirements per year.

PREPA also lacked a formal performance management process and limited use of [Key Performance Indicators] KPIs. The team encountered low accountability and lack of leadership from top management. Often leaders and managers were placed in positions based on political affiliation vs. job qualifications. Job descriptions also were outdated or non-existent.

From an organizational standpoint, PREPA is an inefficient bureaucracy with numerous silos. Certain areas are overly staffed with non-value added administrative personnel. In addition, the executive directorate and executive team is oversized. There also is a shortage of expertise in specific technical skill areas.¹¹⁸

Their direct testimony (PREPA Ex. 3.0) describes steps PREPA has been taking to solve these problems. Since 2014, PREPA's headcount has declined by approximately 1,100 full-time employees through attrition. PREPA expects an additional decline of approximately 600 full-time employees by 2019.

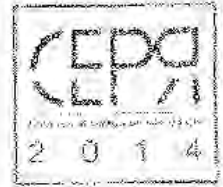
137. Reducing headcount does not necessarily increase efficiency. As discussed in Part Two-III, Commission Advisors Fisher and Horowitz concluded that during FY2015 and FY2016 PREPA did not maintain its electric system adequately, in part due to insufficient staff. Within their proposed spending modifications are increases for labor for generation, transmission and distribution, as well as decreases for labor in the A&G area. Specifically, they propose a net increase of \$12.068 million for labor, consisting of:

- a \$9.680 million increase to Generation Expense;
- a \$3.330 million increase to Transmission Expense;
- a \$16.115 million increase to Distribution Expense; and
- a \$17.057 million decrease to Administrative and General Expense.¹¹⁹

We approve these amounts. As indicated, these numbers are within the already approved amounts for generation, transmission, distribution and administrative & general.

¹¹⁸ *Id.* at 31.

¹¹⁹ Fisher-Horowitz Report at Table 34. These adjustments are displayed in Attachment 3 at



9. Energy Administration Assessment

138. PREPA's revenue requirement request includes \$5.8 million for the Energy Administration Assessment, established by Article 6.16(c) of Act 57-2014. PREPA is required to pay that amount annually by sending it to the Treasury, which then sends it to the Commission in two installments of \$2.9 million each. The Commission approves this amount.

10. Fines and penalties

139. As detailed in the Smith-Dady Report (at 61-62), PREPA has been incurring hundreds of thousands of dollars in fines for environmental non-compliance. Besides the environmental damage, and the awkwardness of government utility violating government rules, there is the problem of financial accountability. PREPA has no shareholders. Therefore, the fines resulting from actions or inactions by executives, managers and employees, fall not on those at-fault individuals but on the ratepayers. Our citizens not only suffer the consequences of environmental damage; they also must pay for the penalties. That is beyond irony. The situation contributes to a culture within PREPA of "not my problem." The purpose of fines and penalties is to induce compliance. Passing the cost on to customers does not achieve compliance.

140. A separate problem is accounting. PREPA says it has been recording its fines and penalties in accounts 92316 and 93000.¹²⁰ But the FERC USoA instruction 21-G provides that fines and penalties are to be recorded in account 426.3, Penalties.¹²¹

141. PREPA stated at the technical hearing that it has received no specific notices of fines or penalties for FY2017.

Directives

1. ***PREPA shall account for fines and penalties in the proper account; specifically, FERC account 426.3.***
2. ***PREPA shall verify that it has not included in its proposed revenue requirement any amounts for fines and penalties.***
3. ***PREPA shall submit to the Commission a full explanation of the causes of fines and penalties from FY2013 to the present, including the names and***

¹²⁰ PREPA's 5-digit account numbers appear to correspond with accounts 923 and 930 in the FERC—the standard accounting system used by utilities.

¹²¹ "G. Any penalties assessed by the Environmental Protection Agency for the emission of excess pollutants shall be charged to Account 426.3, Penalties."



titles of specific individuals whose actions or inactions contributed to the violations that triggered the penalties.

4. *If PREPA incurs fines and penalties for FY2017 or future years, it shall explain to the Commission the nature of these costs and the specific individuals responsible for the actions or inactions causing the fines or penalties. PREPA also shall submit to the Commission a plan for complying with all rules so as to avoid future fines and penalties.*
5. *PREPA shall continue its policy, per the Consent Decree discussed in its FY2014 audited financial statement, of paying the stipulated penalty in advance to benefit from a 50% discount.¹²²*

11. Unused properties

142. PREPA owns properties which it neither uses nor needs to provide utility service.¹²³ These properties have been recorded on PREPA's books at the cost of acquisition. PREPA is in the process of hiring a real estate management firm to appraise the properties and maximize their value through sale, lease or other use.

Directive relating to unused property

PREPA shall provide updates concerning the appraised value of PREPA's unused property (i.e., property not needed to provide utility service), as well as PREPA's plans for maximizing the value of such properties.

12. Other Directives

1. *PREPA shall adjust its monthly report format to list monthly and year-to-date actual spending and budgeted values by labor and non-labor expenses in the same functional areas used herein. These reports shall include the total annual budgets and percent of budgets spent in the past month and year-to-date.*

¹²² PREPA's FY2014 audited financial statements (PREPA Exs. I-2, pp. 82-101) notes that PREPA has paid fines under the Consent Decree. At page 82 (PFI 000086) PREPA states: "The Consent Decree includes stipulated penalties for certain events of non-compliance. Non-compliance events must be disclosed to the EPA in the corresponding report. Ordinarily, when a cover noncompliance event occurs, the Authority pays the stipulated penalty in advance in order to benefit from a 50% discount of the applicable stipulated penalty."

¹²³ These properties are listed in PREPA's response to CEPR-RS-05-33.



2. *PREPA shall prepare a report, to be submitted with its next rate case filing, regarding its use (or lack thereof) of the additional \$19.4 million of operational expenses allowed by the Commission (per Attachment 3, page 6) and the effect of that spending on its system.*
3. *PREPA shall continue to record its monthly operations spending by directorate. When PREPA reallocates funds between directorates, it shall memorialize and justify such reallocations in written form.*
4. *PREPA shall prepare a report, to be submitted with its next rate case filing, that shall include its as-approved internal operations expense budget by directorate, its actual monthly operations spending by directorate, and a listing of these memorialized reallocations and the justifications thereof.*

B. Fuel and power purchase expense

143. For fuel and purchased power, PREPA originally proposed a revenue requirement of about \$1.47 billion in FY2017: \$656 million for fuel and \$820 million for purchased power. The \$656 million figure results from PREPA's projection of \$763.7 million in fuel expense, less performance savings of \$107.7 million.¹²⁴ Combined, these amounts total approximately half of PREPA's entire FY2017 revenue requirement. These figures are projections, not budgets, because there will be an adjustment mechanism, discussed in Part Four-III.B, that reconciles actual costs with projections.

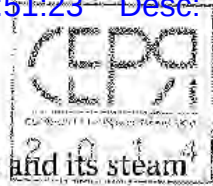
144. Drs. Fisher and Horowitz recommended an increase of \$461.3 million, due to their conclusion that PREPA significantly has under-budgeted fuel expense. They recommended no change in the projected performance savings and no change in the purchased power expense. PREPA separately also updated its proposed revenue to reflect higher fuel prices.

145. In this section we discuss background facts on PREPA's fuel consumption and power purchases, describe its budgeting process for these costs, then evaluate the budgets and make findings. We address here only the reasonableness of these costs. We will address the method of cost recovery (*i.e.*, base rate vs. adjustment charge) in Part Three-III below.

1. Background facts on PREPA's fuel consumption

146. PREPA's generation fleet (*i.e.*, excluding the generation owned by its third-party suppliers of power) consists largely of fossil-fired generators. Apart from two units at the Costa Sur plant, all of PREPA's thermal generators burn either distillate fuel oil or residual

¹²⁴ The projected performance savings involve these categories: generation dispatch, fuel sourcing, fuel supply chain, spinning reserves, and forced outages.



fuel oil.¹²⁵ PREPA's combined cycle and gas turbine units burn mostly distillate and its steam⁴ units burn residual. Costa Sur units 5 and 6 burn a blend of natural gas and residual fuel oil.

147. PREPA's fuel mix has changed over time. In FY2011, residual represented 90% of the fuel burned by PREPA, with the remainder made up of distillate oil. In FY2012, PREPA started burning natural gas at Costa Sur. Gas today represents 27% of PREPA's total fuel use. Use of distillate has increased to approximately 20%, while PREPA's reliance on residual has declined, now representing half of PREPA's fuel consumption.

148. Since PREPA's generation fleet will remain largely the same in FY2017, the total fuel consumption and the shares of fuel types will resemble recent years.

149. PREPA's process for approving and overseeing fuel contracts involves multiple officials. They include the Treasurer, the Head of the Environmental Protection and Quality Assurance Division, the Fuel Office Manager, the Chief Financial Officer, the Director of Legal Affairs, the Operations and Infrastructure Manager, the Head of the Technical Services Division, the Head of the Division of Electrical Conservation and Protection Electric System, the Head of the Division of Electrical Distribution, and the Head of the Material Management Division. All fuel purchase contracts are signed by the Executive Director.¹²⁶

2. Background facts on PREPA's power purchases

150. PREPA has two fossil PPOAs: one with EcoEléctrica, which operates a 507 MW, natural gas-fired combined cycle plant; and one with AES, which operates a 454 MW coal-fired steam plant.

151. PREPA's contractual terms with AES are straightforward. PREPA pays for the energy AES produces and the dependable capacity it provides. PREPA also compensates AES for its startup-related costs after any unit shutdown requested by PREPA. PREPA's energy payment to AES has two components: a fuel pass-through and a charge for variable operations and maintenance costs. The per-kWh energy price is fixed every year, subject to a guarantee from PREPA that the unit will be dispatched at a capacity factor of at least 50%. The capacity price reflects AES's capitals costs and its fixed operations and maintenance costs.

152. PREPA's contract with EcoEléctrica is more complex. It includes a capacity payment and a base energy charge (both of which are structured similarly to the AES

¹²⁵ Distillate is one common name for the No. 2 grade of fuel oil. It is also sometimes referred to as diesel fuel. Residual is one common name for the No. 6 grade of fuel oil. It has a higher viscosity than No. 2 fuel oil and may contain higher levels of impurities.

¹²⁶ Response to CEPR-RS-01-05 at 66. Commission's Fourth Request of Information (July 15, 2016).



contract, although unlike the AES energy charge, the EcoEléctrica base energy charge is adjusted based on the unit's heat rate at different levels of output). As with the EcoEléctrica contract, PREPA pays charges for unit start-up if PREPA requested the preceding shut-down. The EcoEléctrica contract also requires an "excess energy payment" for energy required above a 76% capacity factor. EcoEléctrica sets the usage level associated with the 76% capacity factor monthly and sets the excess energy rate weekly. These factors make it difficult for PREPA to predict its payments to EcoEléctrica.

153. PREPA has active contracts with several renewable energy providers. These contracts include ones with two wind farms, a landfill gas-fired generator and four solar farms. These sellers total approximately 157 MW of capacity. PREPA's contracts with renewable generators typically contain a base energy price with a yearly escalator, plus a payment for renewable energy credits ("RECs"). Our IRP Order detailed concerns with these contracts.

3. The budgeting process for fuel and purchased power

154. To budget fuel and purchased power costs for a given budget period, PREPA undertakes four main steps.

155. First, PREPA forecasts loads and fuel prices. For its FY2017 projections, PREPA relied on fuel price forecasts prepared by Siemens in February of 2016. Siemens described these forecasts as a "lower bound" on the expected trajectory of fuel prices.¹²⁷ In the Final Resolution and Order on the IRP, the Commission found that these forecasts were well below contemporaneous forecasts from credible public forecasts. According to the Fisher-Horowitz Report, the IRP Order's finding has been borne out. Prices have risen greatly. As shown in Table 28 of the Fisher-Horowitz Report, Siemens's fuel price forecasts were wrong.

156. Second, PREPA gathers cost data related to its Power Purchase and Operating Agreement ("PPOA") contracts. To represent PREPA's contract terms in PROMOD (the computerized production cost model to be explained shortly), PREPA makes several adjustments and assumptions. For the renewable contracts, PREPA inputs the contractual energy and REC charges, and uses a capacity factor of 21%. For its contracts with AES, PREPA models a fuel cost and a variable operations and maintenance ("O&M") cost, then separately inputs a capacity charge calculated as a combination of a fixed O&M cost and a capital cost. PREPA follows a similar process for the EcoEléctrica contract. Because the excess energy charge in that contract is determined periodically and unilaterally by the seller, PREPA's modeling of that charge is an educated guess. Our consultants reviewed PREPA's methods and confirmed their reasonableness.

¹²⁷ CEPR-AP-2015-0002; IRP Technical Hearing, April 6, 2016, Nelson Bacalao, 00:14:15 of part 5 of the hearing recording.



157. Third, PREPA determines performance and operational cost data related to its own units.

158. Fourth, the foregoing information is input into PROMOD, a "production cost model" that determines an optimal (i.e., lowest cost while still satisfying demand) dispatch pattern for all units on PREPA's system. PROMOD model forecasts the costs of production in detail—this output becoming PREPA's projected costs.

159. Drs. Fisher and Horowitz raised several concerns about PREPA's use of PROMOD, but felt that each concern was sufficiently small that necessary corrections could occur through the fuel and purchased power adjustors. The concerns were as follow:

1. PREPA used high minimum run times for its steam units, potentially leading to under-use of lower cost units.
2. PREPA assumed for Costa Sur a higher percentage of natural gas than current practice supports.
3. PREPA expects that in FY2017, EcoEléctrica's excess energy price will be lower than PREPA's variable cost of generation, more often than was the case in FY2016. That expectation led PREPA to model a frequent use of EcoEléctrica above the 76% threshold that triggers the excess energy price. Drs. Fisher and Horowitz saw no evidence to support this expectation. Of distinct concern was given the low availability and low flexibility of many of PREPA's units, PREPA would have difficulty committing them quickly to avoid a high excess energy price.¹²⁸
4. While modeling the renewable contracts was mostly straightforward, the consultants found several exceptions involving deviations of modeled prices from contractual prices.¹²⁹

4. Evaluation of PREPA's fuel and purchased power budgets

160. Fuel: Drs. Fisher and Horowitz found that PREPA's fuel spending in the first two months of FY2017 was double its projection. As a result, they recommend a major increase in PREPA's fuel cost for FY2017. Admitting their estimate is rough (and will be corrected through the fuel adjustor), they offered three estimating methods, displayed in Table 25 of the Fisher-Horowitz Report. The median estimate is a total, before performance savings, of \$1,225,000,000. This new total requires increasing PREPA's proposed revenue requirement

¹²⁸ One PREPA witness did assert that the excess energy price is not always something to avoid; sometimes it is a way to save money when that price is lower than PREPA's marginal cost.

¹²⁹ See Table 19 of the Fisher-Horowitz Report.



by \$461,305,000. We adopt this level as reasonable, recognizing that deviations from this amount will be recovered through the adjuster clause. Attachment 1 reflects this adjustment.¹³⁰

161. Purchased power: Drs. Fisher and Horowitz found that since FY2010, PREPA's predictions of its purchased power spending have been reasonably accurate—a conclusion that has held so far in FY2017. The renewable contracts present uncertainty—not due to their prices (which are contractual) but due to their output, because their online dates are difficult to predict. Embodying this uncertainty is a 21% drop (\$30 million), after less than six months, in PREPA's expectations regarding spending on renewable energy contracts.¹³¹ Taking all these facts together, our consultants found "no compelling cause" to adjust PREPA's total PPOA budget, and we agree. The revenue requirement shall reflect PREPA's proposed purchased power cost of \$819,907,000.

Directives on fuel

1. ***PREPA shall increase its FY2017 fuels budget (and its revenue requirement) by \$461,305,000, for a total FY2017 fuel budget of \$1,117,273,000.***
2. ***As presented in its filing on Schedule A-6, PREPA proposed to include the following costs in the Fuel Adjustor: fuels (residual, distillate, natural gas, propane, additives), transportation, inspection, laboratories, storage, handling, delay, taxes, and hedging. PREPA has not incurred Fuel Expense for Additives in the last three fiscal years through FY2016. Nor has it incurred expense for Delays or Fuel Hedging in the last two fiscal years (FY2015 and FY2016). Before incurring such costs in the future, PREPA shall submit to the Commission a request for approval, containing the proposed amount and a justification, and await approval. All other categories of Fuel Expense proposed by PREPA shall be included in its revenue requirement.***
3. ***In the upcoming performance proceeding, the Commission will require PREPA to recommend to the Commission at least three firms to conduct a management performance review specifically relating to fuel purchase costs. These firms may be the same firms recommended for the purchased power review discussed below. The Commission will select one firm, which shall contract with PREPA to conduct the review under specifications established by the Commission. Such review shall contain, without***

¹³⁰ See also Attachment 3 at 5.

¹³¹ See the IRP Final Order at Part IV(F)(4) for a discussion of Commission concerns about uncertainty involving renewables contracts.



*limitation, a recommendation regarding procedures for periodic audits of PREPA's fuel procurement, to ensure that such costs are reasonable and accounted for properly.*¹³²

4. *PREPA shall prepare fuel price forecasts at least semi-annually, submit them to the Commission and post them on its web site.*

Directives on power purchases

1. *There are no adjustments to PREPA's projected FY2017 Purchased Power Expense.*
2. *In the upcoming performance proceeding, the Commission will require PREPA to recommend to the Commission at least three firms to conduct a management performance review specifically relating to purchased power. These firms may be the same firms recommended for the fuel cost review. The Commission will select one firm, which shall contract with PREPA to conduct the review under specifications established by the Commission. Such review shall contain, without limitation, a recommendation regarding procedures for periodic audits of PREPA's power purchases, to ensure that such costs are reasonable and accounted for properly.*¹³³

¹³² PREPA opposed the performance review process stating that such a review will inherently impose burdens and costs and the costs ultimately would be borne by customers. The Commission notes that an independent management performance review can produce significant cost savings from improvements, which are typically greater than the cost incurred in the review process. Moreover, the cost can be less and the customer benefits greater, if the review is conducted by a qualified and independent consultant that is selected by the Commission, rather than by the utility that is being investigated.

¹³³ Regarding the prices in existing renewable contracts, the Commission is not suggesting that high prices in existing renewable contracts reflect imprudent actions by PREPA or excess costs to consumers. Windmar argues that contracts signed in 2010-2012 preceded declines in renewable energy equipment, and occurred at a time when high oil prices made such contracts attractive to PREPA. Our point is not that PREPA necessarily should seek to terminate contracts, but to examine whether renegotiations can lower prices and also make operational dates more certain.

Sunnova and Windmar argue that PREPA's revenue requirement should include an amount for distributed generation RECs. They assert that PREPA has refused to comply with the Renewable Portfolio Standard established by Act 82-2010 by not acquiring all available RECs, and that PREPA owes penalties for non-compliance. Enforcing the RPS obligation—including determining the scope of that obligation—does not fall within the boundaries of this rate proceeding. The proper approach is to submit a complaint alleging specific facts and proposing specific remedies. To the extent the disposition of such a complaint changes PREPA's revenue requirement, the Commission would reflect such change in future rates.



3. ***Consistent with the requirement in our IRP Order, PREPA shall establish and update semiannually a database of its renewable energy contracts, for all projects whether or not operational. This database shall include the names, owners, contract numbers, initial energy costs, current energy costs, initial REC costs, current REC costs, any relevant escalators, and expected and actual on-line dates. The format used in response to CEPR-AH-03-02 is acceptable but not binding.***

C. Capital expenditures

162. PREPA proposes new capital expenditures in FY2017 of \$336.6 million, to be collected from ratepayers in this fiscal year. The FY2017 amount consists of \$232.1 million for maintenance capital, \$56.3 million for the Aguirre Offshore Gasport ("AOGP") and \$48.2 million for transmission and distribution projects.¹³⁴ This amount is comparable to PREPA's CapEx in FY2013 (\$360.1 million) and FY2014 (\$316.0 million), but is much higher than PREPA's CapEx in FY2015 (\$201.1 million) or FY2016 (\$140.4 million).

1. Challenges in projecting capital expenditures

a. The distinction between operating expenses and capital expenditures

163. A transparent approach to setting budgets and revenue requirements requires a clear distinction between a capital expenditure and maintenance expenditure.

164. Operating and maintenance ("O&M") expenses are the expenses required to run the utility day-to-day. For a utility's physical infrastructure (generation, transmission, and distribution), this category includes the repairs and maintenance customarily required to keep an asset operating efficiently and reliably. Accounting principles require recording these costs in the year incurred. Regulatory principles normally require these costs to be recovered from ratepayers in the year incurred.

165. Capital costs are, in contrast, long-lasting. They are associated with new units or equipment, or with expenditures that increase the useful life of an existing unit. Instead of being expensed in the year occurred, they are usually amortized (*i.e.*, spread over the life of the associated equipment). In that way, the customers who benefit are the ones that pay, rather than causing this year's customers to pay for benefits enjoyed by later customers.

166. For a deteriorated plant, the distinction between operating expense and capital expenditure is not always clear. Ordinary repairs might not keep it operational. Temporarily patching a boiler is an operational expense, because the patch will not last multiple years.

¹³⁴ See PREPA Ex. 3.0 at 45 and PREPA Schedule F-3 REV.



Replacing the boiler in the next major outage cycle is a capital expenditure because it will last multiple years. Many of PREPA's proposed expenditures fall into this second category.

167. Part Two-II.B explained that, until PREPA gains access to capital markets, today's ratepayers must pay for both types of expenditures, operating and capital, in the year incurred. PREPA ratepayers therefore will be paying currently for some capital projects in whole, paying this year's portion of projects begun before this year and continuing after this year, and paying for the first part of projects whose completion might not occur until a later year.

b. Spending ceilings unrelated to system needs

168. In recent years, PREPA has based its capital budget on a compromise between the system's actual needs and a desire to avoid any rate increase (recall there has been no base rate increase since 1989). As PREPA explained:

Historically, there has been political pressure to not increase PREPA's rates in response to cost and investment needs and therefore PREPA has had to sacrifice needed capital expenditures in order to remain solvent and to not run out of cash.¹³⁵

This annual compromise produced a "top down" figure—a total budget cap for all capital expenditures, one driven not by system needs alone but by political considerations arising from hesitance to raise rates (or pressure from political actors not to raise rates). In other words, the main question was not "What do we need to spend to fix our system?" but "Given the premise of no rate increases, what can we spend?" This approach produced the following capital expenditure budgets:

FY2010: \$350 million
FY2011: \$300 million
FY2012: \$327 million
FY2013: \$300 million
FY2014: \$300 million
FY2015: \$245 million
FY2016: \$245 million¹³⁶

169. Artificial caps hide the truth. In future rate proceedings, PREPA must reveal truth: the total cost that must be incurred to meet the quality standards to which our citizens

¹³⁵ CEPR-SGH-01-08 at 10. Commission's Second Request of Information (June 23, 2016).

¹³⁶ Fisher-Horowitz Report at 75. PREPA underspent its budgets in FY2015 and FY2016. See Fig. 15 of the Fisher-Horowitz Report.



are entitled. Total cost means total cost: emergency purposes, preventive maintenance, system improvement, and system expansion.

170. A distinct problem arises when PREPA allocates amounts from the total capped budget to various departments. We were told by PREPA that the practice, with some exceptions, has been to allocate to each department the lower of that department's historic budget or its prior year's actual spending. This approach assumes, incorrectly, that the weighting of priorities among departments does not change.¹³⁷ It also encourages each department to spend its budget fully to avoid a reduction in the next year. Neither result substitutes for an annual rethinking of priorities, performed rigorously. PREPA needs to improve its budgeting process: how it sets priorities and how it develops, organizes and stores the information needed to make the best decision. We will address these concerns in our pending investigation on PREPA's performance.

171. But for this first base rate increase in over twenty-five years, the Commission will not require ratepayers to pay for the full amount spending necessary to satisfy PREPA's infrastructure needs. To try to make up for years of under-spending would be too harsh for customers. Nor could PREPA spend those dollars efficiently, given the limited time remaining in the fiscal year and the shortage skilled workers. Furthermore, there needs to be more rigorous budgeting and recordkeeping before we approve higher spending levels. We emphasize, however, the "top-down" budgeting approach that we are forced to accept here must not and will not continue. Rather than continuing to spend in reaction to system breakdowns, PREPA must invest in a reliable future. At the Technical Hearing, most of PREPA's witnesses made clear that they are willing and ready to abandon the historic approach and embrace the right approach. This Commission will insist on PREPA's doing so.

c. The nature of Commission's review

172. PREPA's capital expenditure request for FY2017 lists 402 items, with stated amounts ranging from zero to \$20 million. The items are diverse: refurbishing individual turbines or generators; building new poles and lines; acquiring advanced transmission and distribution equipment; ordering new utility vehicles, computer systems, and network equipment, among others.

173. A thorough evaluation of PREPA's budgeting and spending requires a team of engineers and auditors. Those assets are not presently available to the Commission. Even if they were available, the short 180 days statutorily available for this first rate proceeding would have been insufficient to deploy them effectively. We will use the upcoming performance proceeding to deploy the necessary expertise. But in this proceeding it was not practical, or wise, to attempt to review the reasonableness of every dollar.

¹³⁷ However, it appears that some consideration is given to individual department requests arising from each department's determination of its needs. Directors ask for what they need; their requests are considered by top executives; then directors are given a budget amount.



174. Among the challenges facing the Commission was transparency. While PREPA made serious efforts to provide the information we required, answering hundreds of questions, the information provided was often insufficient. Documents did not always make clear the purpose of a capital project, its prior spending, its progress toward completion or the predicted final cost. Often PREPA presented for a project a single number representing spending for a single year. That number did not inform us about the past or the future, because a line item in the FY2017 capital budget is only a fraction of a larger project. One must understand the full picture: When did the project start, when will it end, and is the spending this year and thus far consistent with the total budget? Without this information, we cannot know the project's purpose, its reasonableness as a solution to a problem, or the reasonableness of the project cost. PREPA's presentation often left us unable to determine whether a project's progress and spending coincided with an established schedule.

175. Contributing to the problem was dispersed records. When asked for work orders or contracts for engineering, procurement and construction ("EPC") for projects, PREPA responded:

PREPA does not have electronic systems configured to be able to assess automatically which work orders are associated with a particular [capital expenditure] project; most of this information is on paper records. And those paper records are not organized by project in a central location. Further answering, the process of preparing the [capital expenditure] budgets start in PREPA's transmission and distribution districts, generating plants, customer service offices, among others.¹³⁸

PREPA further explained:

The particular details of each project are managed locally, not at a central location. Once the final complied spending limits are met, the plan can go through the final approvals. Regarding projects with no money spent, any documents reflecting the corresponding justifications and related information is located in the multiple generation plants, distribution offices, customer service areas, and other offices or departments that are responsible for or use that [capital expenditure] project.¹³⁹

176. This dispersion of information meant that PREPA could not provide sufficient documentation explaining a project, justifying its expense, how the estimate was generated, or even the project's value to customers. As our consultants explained, with respect to specific capital projects PREPA was often "unable to provide basic explanations, work-plans,

¹³⁸ CEPR-AH-02-02(c) at 1. Commission's Sixth Request of Information (July 29, 2016).

¹³⁹ *Id.*



or other due diligence documentation [...]. The consultants thus had to "assess separate records of generator operations, forced outages, historic spending, and explanations scattered across dozens of disparate data responses to even begin to gain a coherent view of the state of PREPA's system, their needs, and the value of the projects requested by PREPA."¹⁴⁰

177. Given these limitations, the Commission focused on capital spending areas raising obvious questions, while accepting PREPA's other proposed numbers for this rate year. For the lack of organized documentation does not change the reality that more spending is necessary to fix PREPA's system. We grant the approvals below, however, subject to the strict condition that PREPA complies with the budgeting procedures and transparency requirements established throughout this Order.

* * *

178. In the following subparts we will address the proposed capital expenditures for each of the following areas:

- Generating plant
- Aguirre Offshore Gasport
- Transmission
- Distribution
- Transportation and Computer Equipment

We will close by stating our overall findings on capital expenditures in the revenue requirement.

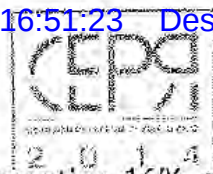
2. Generating plant

179. Part One-III described, in general terms, the deterioration of PREPA's generation fleet. Merely beginning the process of restoration—the minimum necessary to keep the system operating—will require hundreds of millions of dollars. For each of the major generating plant, we address first the challenges it faces, then address how PREPA's proposed capital budget responds to those challenges.

a. Aguirre steam units

180. Aguirre is a 1,492 MW plant near Salinas. It is the largest single plant in the PREPA system, making up 26% of PREPA's generating capacity. It has three subcomponents: a steam power plant (900 MW), a combined cycle power plant (520 MW), and a simple cycle power block (72 MW). The Aguirre steam power plant, built in 1975, is itself divided into two electrical generating units of 450 MW each, both fired by heavy fuel oil. These steam

¹⁴⁰ Fisher-Horowitz Report at 80.



units are the largest central station generators on PREPA's system, representing 16% of system capacity.

(i) Outage problems

181. Forced outages occur when a generator either automatically turns off or is brought offline for a mechanical, safety, or environmental problem or violation. A unit's high forced outage rate signals need for repair, chronic operational problem or susceptibility to operator error.

182. From 2012 to 2014 (calendar year), the Aguirre Steam Units on average had an unexpected outage during 612 hours, or twenty-five and a half days every year.¹⁴¹ In 2015, Aguirre Steam Unit 1 suffered an extended outage from mid-July to the end of the year.¹⁴² Aguirre Steam Unit 2 had another outage starting December 1st of 2015. The turbine remained offline through the last provided record in August 2016, for an outage of 246 days. The result was a combined forced outage rate of 27% in 2015 and 46% in 2016.

183. This record makes clear that PREPA's largest units are not reliable. Drs. Fisher and Horowitz concluded that "such sequential failures are not a function of normal wear and tear or aging, but are indicative of systematic maintenance failures, a failure to perform predictive maintenance, operational errors, and faulty repairs."¹⁴³

(ii) Relationship to AOGP

184. The Aguirre Steam Units are not compliant with EPA's Mercury and Air Toxics Standard ("MATS"). PREPA's strategy for MATS compliance at Aguirre is to switch these units from oil to natural gas, using gas provided by the AOGP project (discussed in Part Two-III(C)(3) below). PREPA treats this conversion, along with the construction of the offshore gasport and associated facilities, as a single capital expenditure. But the Aguirre Steam Units need capital expenditures regardless of their connection to AOGP.

185. Determining the reasonableness of these expenditures is complicated. On the plus side, improving these units' performance will improve PREPA's reliability, while avoiding the need to operate more expensive backup units. On the negative side, extending the Aguirre units' lives will not be economical if the Commission ultimately rejects AOGP in favor of replacing the Aguirre units. Under PREPA's IRP plan, the Aguirre Steam Units would retire in 2026 and 2027, respectively.¹⁴⁴ With this plan (which assumes AOGP), continued

¹⁴¹ CEPR-JF-01-16 Attach 02 at 3, Commission's Sixth Request of Information (July 29, 2016).

¹⁴² *Id.* Log of forced outages.

¹⁴³ Fisher-Horowitz Report at 90.

¹⁴⁴ PREPA Base IRP (August 17, 2015), Table 7-4.



capital investments make sense, to ensure reliable operation for another decade.¹⁴⁵ But if the upcoming AOGP Economic Analysis causes the Commission to reject AOGP in favor of other options, logic dictates making only those investments at Aguirre necessary to ensure continued operation and reliability for the units' remaining lives.

(iii) Proposed capital expenditures

186. For FY2017, PREPA estimates \$27 million in capital expenditures at the Aguirre Steam Units. That one-year cost is part of a multi-year project. For FY2017-2019, PREPA anticipates capital expenditures of \$65 million, mostly for rehabilitating turbines and boilers. The \$27 million amount represents both the tail of spending begun in prior years, as well the start of spending for projects expected to extend through FY2018 and FY2019. Combined with the natural gas conversion projects, PREPA is planning on spending \$114 million in capital on the Aguirre Steam Units between FY2017-2019. The spending discussed here accounts only for projects that are currently planned in the next two years. There is a possibility that between now and 2019, PREPA will plan, scope and budget for additional capital projects at the Aguirre Steam Units.

187. PREPA has already started a series of retrofits of the boiler, turbine and generator at Aguirre Unit 2. While PREPA says these efforts aim to extend that unit's useful life, the turbine rehabilitation effort coincides with the failure of the turbine in November 2015.¹⁴⁵ Our consultants concluded that PREPA requires at least minimum capital to keep these units available while the Commission determines whether they should be continued through 2027 or be replaced sooner.

188. Drs. Fisher and Horowitz stated they were unable to assess whether the amounts proposed by PREPA matched well with the specific proposed projects. They did find, however, that PREPA's total anticipated expenditure at the Aguirre Steam Units, averaging \$24/kW from 2017-2019 for non-AOGP projects, was consistent with "run-rate" capital dollars budgeted for steam coal units at other utilities.¹⁴⁶

b. Costa Sur steam units

189. Costa Sur Plant is a 990 MW plant near Guayanilla. It is the second largest single plant in the PREPA system, making up about 17% of PREPA's capacity. It consists of four steam boiler electrical generating units: two sized at 85 MW and two sized at 410 MW.¹⁴⁷ The Costa Sur units are designed to be fired by residual fuel oil (No. 6).¹⁴⁸ Since 2012, Costa

¹⁴⁵ CEPR-JF-01-16 Attach 02 at 3. Commission's Sixth Request of Information (July 29, 2016).

¹⁴⁶ Fisher-Horowitz Report at 94.

¹⁴⁷ PREPA Base IRP, August 17, 2015, Table 3-1.

¹⁴⁸ *Id.*



Sur Units 5 & 6, the larger units at the plant, have been fired with approximately 60-80% natural gas acquired from Gas Natural Fenosa, the majority owner of the EcoElectrica power plant.¹⁴⁹ The fractions of gas and oil burned at Units 5 & 6 has varied over time, but is rarely less than 60%.

(i) Operations

190. For the last five years, the larger two units at Costa Sur have operated with an average capacity of 65%, making them the highest utilization units on the PREPA system. From calendar year 2012 through 2015, they maintained an average availability of 97%.

191. The smaller two units at Costa Sur, 3 & 4, are not MATS-compliant. To comply with MATS, PREPA has designated these units as "limited use," requiring them to operate below an 8% capacity factor starting in FY2016. In FY2016 Costa Sur 3 had a capacity factor of 11.3%.

(ii) Proposed capital expenditures

192. PREPA anticipates spending \$7.4 million on capital improvements at Costa Sur Units 5 & 6 in FY2017. As the plant moves into a seven-year overhaul cycle, that level will increase through FY2020, due to investments in boilers and turbines, and modifications to the cooling intake and discharge systems to meet environmental regulatory requirements. PREPA does not propose any capital expenditures at Costa Sur 3 & 4, even though these units were used in FY2016, and even though PREPA's long-term plans designated these units for backup capacity.

193. Drs. Fisher and Horowitz concluded that the proposed capital expenditures for the boiler and turbine refurbishment are in line with similar projects envisioned by PREPA and seen elsewhere. They also found that PREPA's total anticipated spending at the Aguirre Steam Units, averaging \$16/kW from 2017-2019, are in line with "run-rate" capital dollars budgeted for steam coal units at other utilities.¹⁵⁰

c. Palo Seco steam units

194. The Palo Seco Plant has four large generating units located about two linear miles from downtown Old San Juan. Palo Seco's arrangement resembles Costa Sur's, but is smaller. Palo Seco 1 & 2 are 85 MW each, while Palo Seco 3 & 4 are 216 MW each. PREPA maintains simple cycle turbines at the Palo Seco site. Palo Seco was designed to be fired by heavy fuel oil (No. 6). At 602 MW, the Palo Seco Plant is PREPA's fourth largest plant, making

¹⁴⁹ Percentages by equivalent heat content. CEPR-AH-06-01at 1. Commission's Fourteen Request of Information (September 30, 2016).

¹⁵⁰ Fisher-Horowitz Report at 97.



up about 10% of PREPA's capacity. These units are a fundamental part of PREPA's northern fleet.

(i) MATS compliance and forced outages

195. Palo Seco's steam units are not MATS-compliant. PREPA has designated the two smaller units as "limited use," but the larger units lack a specific compliance strategy. PREPA has stated that "Siemens assumes that PREPA enters into a settlement agreement with EPA regarding Palo Seco 3 & 4 steam units (with a total capacity of 432 MW) allowing these units to continue operation burning No. 6 fuel oil through December 31, 2020. After that they will be either replaced or designated as a limited use unit."¹⁵¹ Under this strategy, PREPA must be able to replace the Palo Seco units expeditiously.

196. The "limited use" designation for Palo Seco 1 & 2 required those units to operate at a capacity factor below 8%, starting in April 2015. But in FY2016, both units had capacity factors of 39% and 44%, respectively.¹⁵² PREPA has explained that for Palo Seco 1 & 2 to satisfy the "limited use" designation, PREPA's other units, particularly those at San Juan and Palo Seco, need to be operating consistently. They are operating inconsistently. Palo Seco 3 & 4 had substantial outages, while PREPA does not expect Palo Seco 4 to be back in full service until January 2017.¹⁵³

197. Palo Seco 3 & 4 has suffered outages exceeding those at the Aguirre Steam Units. Like Aguirre, Palo Seco experienced marked increases in the forced outage rate in 2014 and 2015. In 2015, Palo Seco's steam units was available about 65% of the time; in 2012 and 2013 their availability was 97% and 94%, respectively. At least as of August 2016, Palo Seco 4 has remained out of service.¹⁵⁴ Overall, Palo Seco 4 stayed on forced outage for over a year and a half, with only two months of actual operation in that time. Palo Seco 3 has had a similar history of forced outages, beginning in October 2015.¹⁵⁵

(ii) Proposed capital expenditures

198. For FY2017, PREPA proposes capital spending at Palo Seco Units 3 & 4 of \$8.5 million. The largest single project, PID 13448 ("Turbine Generator Improvement") is a

¹⁵¹ PREPA Base IRP, August 17, 2015. Section 7-5.

¹⁵² CEPR-AH-03-07 Attach 01 at 5, Commission's Seventh Request of Information. (August 12, 2016).

¹⁵³ CEPR-JF-01-10(c) at 7, Commission's Sixth Request of Information. (July 29, 2016).

¹⁵⁴ CEPR-AH-06-06(a) at 6, Commission's Fourteen Request of Information. (September 30, 2016).

¹⁵⁵ CEPR-JF-01-16 Attach 02 at 3, Commission's Sixth Request of Information. (July 29, 2016).



full overhaul of the turbine at Palo Seco 4 to bring it back to service. PREPA has not proposed capital expenditures at Palo Seco 1 & 2, even though it intends those units to provide backup capacity as "limited use" units. Drs. Fisher and Horowitz state it is unclear whether these units can stay within 8% capacity factor, given the need for generation in the north due to outages at PREPA's other northern plants.¹⁵⁶

d. San Juan Steam units

199. The San Juan Steam Plant has four 100 MW steam units. They were built between 1965-1969, making this plant PREPA's oldest. The San Juan Steam Units were designed to be fired by residual fuel oil (No. 6).

(i) MATS compliance and forced outages

200. PREPA intends to designate San Juan 7 & 8 as "limited use." It is also seeking leniency for San Juan 9 and 10. PREPA has argued that it cannot designate San Juan 9 & 10 as limited use because they are "critical reliability units." PREPA plans to convert them to "burn natural gas on a dual-fuel scenario with Bunker C [No. 6] fuel oil."¹⁵⁷

201. That conversion to natural gas would require a source of natural gas, but PREPA has stated: "While gas to the North could potentially be achieved via LNG infrastructure in the North or a South-to-North gas pipeline, the feasibility of either option is yet to be evaluated."¹⁵⁸ In the meantime, for the last five years San Juan 7 & 8 have operated at a 60% capacity factor, well above the 8% cap for "limited use" status.

These inconsistencies leave us with uncertainties. The following questions remain unanswered:

1. What PREPA can do to achieve reasonable MATS compliance at San Juan Plant.
2. What steps PREPA is taking to achieve MATS compliance at San Juan 9 & 10.
3. What expectations have been set with EPA with respect to MATS compliance at San Juan 9 & 10.
4. Whether PREPA still relies on the assumption that San Juan 9 & 10 will be converted to natural gas with a "gas to the north" scenario.

¹⁵⁶ Fisher-Horowitz Report at 100-101.

¹⁵⁷ CEPR-[F-01-10 Attach 01. Early Notice of Compliance Plan, Mercury and Air Toxics Standards ("MATS") pages 9-10. Commission's Sixth Request of Information, (July 29, 2016).

¹⁵⁸ PREPA 2015 Integrated Resource Plan, Section 6.3.1.



5. How the suboptimal operational record at San Juan 10 comports with PREPA's assertion that this unit is critical for reliability in the north of Puerto Rico.
6. How PREPA expects to meet the limited use designation for San Juan 7 & 8.

Like Palo Seco and Aguirre Steam Plants, San Juan Steam Plant has experienced increases in forced outages in the last two years.¹⁵⁹ In calendar year 2015, San Juan 10 had effective availability of about 18%. The unit is still offline and PREPA does not expect a return to service until mid-2017.¹⁶⁰ San Juan 9 had a series of outages in mid-2015, but has generally remained serviceable over the last six months with relatively minor outages. San Juan 7 & 8 have maintained better availability than the other units.

(ii) Proposed capital expenditures

202. For FY2017, PREPA proposes to spend \$200,000 at all of San Juan Steam Plants (for FY2019 PREPA proposes to spend \$15 million for improvements to the turbines and boilers at San Juan 9 & 10). Drs. Fisher and Horowitz concluded that the low spending level for FY2017 is inconsistent with these units' reliability problems, given their stated critical role. They reason that if these plants are not needed for reliability, they should be retired; if they are needed, then small dollars will not solve their large outage problems.¹⁶¹

e. Aguirre and San Juan combined cycle units

203. The Aguirre and San Juan Combined Cycle ("CC") Units are the only combined cycle units in PREPA's current fleet. They are composed of combustion turbine ("CT") units and heat recovery steam generators ("HRSG"). These components enable them to use the waste heat produced by the combustion turbine to create additional electricity. Both sets of combined cycle units burn diesel fuel. The two Aguirre CC units have nameplate capacities each of 296 MW; PREPA rates each at 260 MW, for a total of 520 MW. The units were built in 1977 and have a very high heat rate (*i.e.*, low efficiency, in terms of amount of fuel necessary to create a unit of electricity). The two San Juan CC units have nameplate capacities each of 220 MW, but are rated by PREPA at 200 MW for a total of 400 MW. The units were built in 2008 and 2009. As newer units, they have relatively low heat rates (*i.e.*, high efficiency).

204. PREPA did not provide forced outage records or estimates for the Aguirre Combined Cycle units. PREPA's 2015 IRP did model a forced outage rate of 20%.

¹⁵⁹ Fisher-Horowitz Report at 102.

¹⁶⁰ CEPR-JF-01-10(c) at 7, Commission's Sixth Request of Information. (July 29, 2016).

¹⁶¹ Fisher-Horowitz Report at 105.



(i) Plans for these units

205. In its IRP decision, the Commission ordered PREPA to pursue permitting and start a competitive bidding process for the repowering of the Aguirre 1 and 2 CC units with new, dual-fuel capable turbines.¹⁶² Neither the repowering nor the planning or permitting costs for the repowering are part of PREPA's petition for a FY2017 rate increase.

206. In its 2015 IRP submission, PREPA proposed to convert the Aguirre CC to operate as a gas-fired facility starting in 2018, with the conversion coinciding with AOGP. PREPA's rate proposal includes the gas conversion at Aguirre CC with the AOGP project. PREPA has not yet signed a contract for this work, but has had informal discussions with General Electric.

(ii) Proposed capital expenditures

207. According to Drs. Fisher and Horowitz, the Company's modeling indicates that a repowered Aguirre CC unit, operating with a lower heat rate and better reliability, can support a plan to retire the Palo Seco and San Juan steam units. Yet PREPA proposes to spend on Aguirre CC only \$17.8 million from FY2017 to FY2019, mostly for scheduled maintenance and "automation" systems. This amount is comparable to what PREPA spent in FY2016—yet according to Drs. Fisher and Horowitz, outages at Aguirre CC are preventing this unit from contributing reliably. PREPA seeks to make the gas conversion of the Aguirre CC a key component of the AOGP project and gasification of the south. These factors are in conflict with the low spending level proposed.

208. In contrast, at San Juan CC plant, PREPA proposes to spend \$40.8 million from FY2017 to FY2019. One contributor to this cost is a maintenance contract from Mitsubishi-Ititachi ("MHPS-PR") to service the combustion turbines and generators (PIDs 16945 & 16946). This long-term agreement, signed in March 2016, extends and expands the scope of services provided by MHPS-PR from technical support and assistance to a full maintenance contract. Because this contract is specifically associated with the regular maintenance of the generator, the costs of this contract should be considered an operations and maintenance ("O&M") expense rather than a capital cost. One PREPA witness explained that if the unit is not in service, Mitsubishi does not get paid. This contract feature, he argued, reduces the need for a review of Mitsubishi's performance.

f. Cambalache and Mayagüez combustion turbine units

209. Cambalache and Mayagüez are two CTs (also known as "gas turbines") that burn diesel. Cambalache, near Arecibo on the northern central coast, has three power blocks of 83 MW each, totaling 249 MW. It was built in 1997-1998. Mayagüez station, located on the

¹⁶² Final IRP Order, Part VII(B)(1)(c).



west coast, has four power blocks at approximately 50 MW each, or 200 MW. Mayagüez began operation in 2009.

(i) Outage problems

210. The Consulting Engineer's 2013 Report discussed a critical failure at the Cambalache plant when a control system fault led to the buildup of unburnt fuel in a turbine, leading to an explosion that severely damaged Unit 1.¹⁶³ The same report discusses more minor outages at Mayagüez, including an incorrectly installed turbine that required modification under warranty.

(ii) Expenditures on maintenance contracts

211. PREPA's proposed expenditures consist entirely of flat fees for "inspections" at Cambalache (PID 15880) and "improvement" at Mayagüez (PID 16978). At Cambalache, the inspection represents an ongoing service contract with Alstom, valued at \$4 million per year. At Mayagüez, PREPA simply indicates a flat \$600,000 per year "improvement." It is unclear why PREPA anticipates spending \$4 million per year at the older, less efficient 249 MW Cambalache plant, while spending a much lower amount at the newer, more efficient Mayagüez station.

212. The primary spending at Cambalache is a maintenance contract with contractor Alstom Caribe (now a division of GE Power). The twelve-year contract, signed in May 2011, is designed to provide an inspection and refurbishment of combustion turbines and generators every two and a half years. Like the San Juan CC maintenance contract, Alstom divides maintenance into cycles, denoted as "A" through "D" inspections. "A" inspections occur approximately every month and a half (1,000 hours) and include preventative maintenance. "B" inspections occur every year and half (12,500 hours) and include the disassembly of the turbine unit for closer review. "C" inspections, every two and a half to three years (25,000 hours), include the refurbishment of the turbine and combustion chamber. Finally, "D" inspections, every five to seven years (50,000 hours), entail the refurbishment or replacement of any worn component in the generator or turbine.¹⁶⁴ The maintenance contract at Cambalache is specifically geared to the "C" inspection cycle.

213. Maintenance responsibilities under the contract are split between PREPA and Alstom, where Alstom provides turbine cleaning, inspection and refurbishment services, but

¹⁶³ URS June 2013 Annual Report at 27.

¹⁶⁴ *Id.* at 6-7.



PREPA "employees are responsible for the installation of replacement parts,"¹⁶⁵ and day-to-day operations and site maintenance.¹⁶⁶

214. The "C" inspections provided under this contract fall into standard ongoing maintenance cycles. Because this contract is specifically associated with the regular maintenance of the generator, the costs of this contract should be treated as an O&M expense rather than a capital cost.

215. While the contract requires that Alstom provide a "permanent on-site operations and maintenance advisor,"¹⁶⁷ and provides a "technical field advisor" for "A" and "B" inspections, the contract does not actually specify the role of the technical field advisor, who leads the inspection and refurbishment process and, most importantly, who bears responsibility for correctly executed inspections, maintenance, and replacement.

216. The contract limits Alstom's liability for PREPA staff negligence or deficiencies. Alstom included a contract provision "exclud[ing] any and all liquidated damages for outage schedule delays, unless such delay is 100% attributable to a negligent act or omission of ALSTOM (i.e., ALSTOM fails to deliver a correct part or make available the required personnel and such late delivery/performance causes an outage delay)."¹⁶⁸

217. Since PREPA did not provide a record of forced outages at Cambalache, including any reasons for outages or delays, the Commission's consultants were unable to evaluate Alstom's performance. There was a two-year outage at Cambalache arising from a control system failure that caused an explosion in the turbine.¹⁶⁹

218. According to our consultants, the Cambalache contract has no performance incentives or penalties to keep the units in operation or in a state of good repair. Alstom's liabilities are limited to a small fraction of the cost of the contract.¹⁷⁰

¹⁶⁵ *Id.* at 26.

¹⁶⁶ Alstom Cambalache 2011 Contract at ¶ 1.5 and Appendix 1.

¹⁶⁷ *Id.* at ¶ 1.1(b).

¹⁶⁸ *Id.* at ¶ 1.1(f).

¹⁶⁹ URS June 2013 Annual Report, Page 27.

¹⁷⁰ Alstom Cambalache 2011 Contract at ¶ 8.3.



Directives

1. *The FY2017 revenue requirement shall include the full proposed capital spending at Aguirre, Costa Sur 5 & 6, Palo Seco, and San Juan Steam Plants, as well as the \$600,000 FY2017 improvements at Mayagüez.*
2. *PREPA shall remove the maintenance contract at San Juan CC from the capital budget and reassigned it as an annual maintenance expense, a reassignment of \$12 million in FY2017 from capital to O&M. PREPA shall remove the cost of the Cambalache maintenance contract from the capital budget and reassign it as an annual maintenance expense—a reassignment of \$4 million in FY2017 from capital to O&M. Attachment 1 shows increased PREPA's Generation Expense by \$16 million, as discussed above.¹⁷¹*
3. *PREPA shall track capital expenses associated with each generating unit designated as "limited use." Such tracking shall be performed for each individual unit. To the extent capital expenditures at a plant site are not separable by unit, PREPA shall associate those expenditures in the tracking record by the units that benefit from the capital or, if applicable, designate an expenditure as "whole plant." In addition to, or as part of this tracking, PREPA shall:*
 - a. *submit periodic reports on capital projects at Palo Seco 1 & 2, regardless of whether these units are designated "limited use."*
 - b. *submit periodic reports on capital projects at San Juan 7-10, regardless of whether these units are deemed "limited use."*
 - c. *submit periodic reports on capital projects at Costa Sur 3 & 4, regardless of whether these units are deemed "limited use."*
4. *PREPA shall submit strategic plans for the San Juan and Palo Seco steam plants, including the following elements, at a minimum: maintenance plan, MATS compliance plan, and an investment plan for maintaining or retiring San Juan 7-10 and Palo Seco 1 & 2. These plans shall be informed by a reliability study, assessing what strains are placed on the generation and transmission system in the presence or absence of the San Juan or the Palo Seco steam units.*
5. *PREPA's long-term modeling, including for integrated resource planning, shall consistently assess whether each generating unit designated as*

¹⁷¹ See Attachment 3, at 3.



"limited use" is available for reliability purposes; and if not, assess the value of maintaining units that neither contribute to peak purposes nor provide energy to the system.

6. *In its next submission within the integrated resource planning process, PREPA shall assess the economic value to ratepayers of maintaining each "limited use" unit, as compared to retiring such unit.*
7. *In the upcoming performance proceeding, the Commission shall consider whether to require PREPA submit to the Commission at least three qualified consultants, one of which the Commission will select and retain, to:*
 - a. *examine the maintenance contract at San Juan combined cycle plants and the performance of MHPS-PR to determine if the contractor is meeting performance expectations for maintenance service.*
 - b. *examine the Cambalache contract and the performance of Alstom to determine if the contractor is meeting performance expectations for maintenance service at Cambalache.*
8. *PREPA shall submit for Commission approval, prior to its execution, any long-term contract with service providers with a potential net present value of \$25 million or higher.*
9. *PREPA shall submit a summary of the expenditures necessitated by the fire and outage occurring in September 2016.¹⁷²*

3. Aguirre Offshore Gasport

a. Overview

219. The Aguirre Offshore Gasport ("AOGP") is a re-gasification facility. Its purpose is to allow the Aguirre Steam and Aguirre Combined Cycle units (collectively "Aguirre Plant")

¹⁷² PREPA opposes this requirement, arguing that the fire did not affect the revenue requirement in the current test year and that the Commission can investigate the costs in a future reconciliation proceeding. PREPA is missing the point, emphasized throughout this Part Two and articulated procedurally in Part Four: The Commission intends to avoid situations in which PREPA incurs costs first, then tells the Commission in a reconciliation proceeding that the Commission has no choice but to approve them because they have already been incurred. To protect consumers, the Commission must reserve its powers to evaluate costs before they are incurred. PREPA must not view the reconciliation process as allowing it to incur costs without accountability.



access to natural gas shipped to Puerto Rico as liquefied natural gas ("LNG"). here, AOGP includes four interlinked projects:

1. The offshore project: an LNG berthing platform and submerged pipeline connecting the offshore project to the Aguirre Plant site;
2. The onshore project: a pipeline from Jobos Bay to the Aguirre Plant facilities;
3. The combined cycle conversion project: the installation of natural gas burners and control equipment at Aguirre Combined Cycle Units 1 and 2; and
4. The Units 1 & 2 conversion project: the installation of natural gas burners, boiler modifications, and control equipment at Aguirre Steam Units 1 and 2.

On completion, AOGP's vendor, Excelerate, would dock a Floating Storage and Regasification Unit ("FSRU") at the offshore port. Arriving tankers would transfer LNG to the FSRU, which would decompress the LNG on an as-needed basis, shipping the decompressed natural gas through an undersea pipeline to the Aguirre Plant.¹⁷³ Permitting and engineering for the facility are ongoing.

220. PREPA says AOGP has four main benefits. It "would (1) contribute to the diversification of energy sources in Puerto Rico, (2) allow the Aguirre Plant to meet the requirements of the EPA's MATS rule, (3) reduce fuel oil barge traffic in Jobos Bay, and (4) contribute to energy price stabilization in the region."

b. Capital cost

221. PREPA proposes to include in its revenue requirement \$56.3 million in FY2017 and \$413.3 million in FY2018.

222. When it submitted its rate case request, PREPA estimated the total AOGP cost at \$552 million, including financing costs. As detailed in the Fisher-Horowitz Report, that total has undergone several changes and re-estimates. The \$552 million figure does not include the 15-year contract with Excelerate, a 15-year commitment at \$40.7 million per year (present value of \$422 million). Unlike all other capital expenditures in this rate case, PREPA believes it can secure financing for AOGP, assisted by a U.S. Department of Energy ("DOE") loan guarantee, which PREPA is seeking for 80% of the project cost.¹⁷⁴ The \$56.3 million in FY2017 represents a portion of the costs for which PREPA has not requested financing

¹⁷³ Federal Energy Regulatory Commission, February 2015. Aguirre Offshore Gasport Project: Final Environmental Impact Statement (FEIS). Docket Nos. CP13-193-000 and PF12-4-000.

¹⁷⁴ Dr. Quintana has stated that the DOE assistance is not the only possible financing path. Ex 13.00 ll. 177-179.



support from DOE. Because the Commission will be limiting the FY2017 recovery to \$15 million, we will defer a discussion of the budget details for when we make a final decision on the project.

c. Contracting

223. The Fisher-Horowitz report details the major contracts necessary to complete and operate AOGP, including contracts for the development of the offshore gasport itself ("Infrastructure Agreement"), the gas conversions of the Aguirre Plant units, the operation and maintenance of the gasport facilities ("Terminal Operation and Maintenance Agreement"), and the long-term rental of the FSRU facility ("Time Charter Party and LNG Storage and Regasification Agreement", or "Time Charter"), as well as other contracts for AOGP completion including engineering services, development of the environmental impact statement ("EIS"), the development and shepherding of other permits through Puerto Rico and federal agencies, and legal services.

d. Commission's IRP findings and PREPA's revised revenue requirement

224. In its Final Resolution and Order on PREPA's 2015 IRP, the Commission determined that it "cannot conclude that AOGP represents a least-cost, least-risk path for serving customers' needs and meeting Puerto Rico's energy policy goals based on the facts presented in this proceeding."¹⁷⁵ The Commission approved continued permitting, engineering and planning activities in the overall AOGP project, subject to a \$15 million spending cap. PREPA must obtain Commission permission before exceeding that cap—permission that will be withheld until there is a "detailed economic assessment" of AOGP. PREPA has sought reconsideration.

225. On September 27, 2016, the Commission in the instant rate proceeding required PREPA to re-file its revenue requirement exhibits and testimony to, among other things, reflect the \$15 million cap on AOGP spending. The Commission made clear that the \$15 million cap "applies to the total combined spending associated with AOGP and the gas conversions."

226. PREPA's revised revenue requirement did not make the required adjustment. PREPA argued, among other things, that "even if AOGP and the other generation projects in the north are not approved, PREPA's other significant investments would have to be made rapidly."¹⁷⁶ PREPA concluded that it "has no reason to believe that these alternative

¹⁷⁵ CEPR-AP-2015-0002 (Sept. 26, 2016) at ¶ 255.

¹⁷⁶ PREPA Ex. 13.00 at ll. 110-111.



investments would be any less expensive than the investments currently reflected in its three year business plan."¹⁷⁷

227. This argument was unaccompanied by supporting evidence. The Commission therefore will retain the \$15 million cap. If and when PREPA needs to incur additional costs for AOGP, it shall first seek and obtain Commission approval through the AOGP Economic Analysis as specified in the IRP Order. Similarly, if PREPA needs to incur costs for "alternative investments" it shall seek and obtain prior approval from this Commission. The \$15 million limit specified in the IRP Order is a limit not only on FY2017 spending, but on project commitments as well. Until such time that it has received Commission approval, PREPA shall take no action under any contract that increases its financial obligations beyond those that currently exist.

228. PREPA has argued that preventing progress on AOGP risks incurring EPA fines. This argument is nearly synonymous with an argument that AOGP is the only option for satisfying MATS, such that rejecting AOGP make EPA finds certain. The Commission rejects that argument because it is unsupported by facts. PREPA itself has included no amounts for fines in its proposed revenue requirement. When the Commission receives from PREPA the economic analysis required by the IRP Order, and if based on that analysis the Commission finds that AOGP is the most cost-effective path to MATS compliance, it will reconsider PREPA's argument. And when PREPA has credible evidence that such fines are imminent, instead of generalized statements that do not take into account EPA practices and precedents on fines, it should bring that information to the Commission.

229. The Fisher-Horowitz Report states (at 131):

[I]n the time that PREPA committed internally to the AOGP project it increasingly sidelined viable alternatives, including MATS-compliant new generation, environmental controls on existing generation, increased renewable penetration, a focus on smaller distributed generation, or the completion of a south coast gas pipeline. PREPA has presented little or no evidence that those options are not still viable.

230. PREPA's emphasis on AOGP has come at the expense of a permitted, licensed, and half-built pipeline from the EcoEléctrica facility to Aguirre. As Ms. Miranda stated, "based on the previous studies that we did to justify this project, the cancellation of the south gas pipeline in 2009 was not optimal."¹⁷⁸ As our consultants explained, PREPA has "narrowed its options for improving and expanding the current MATS-compliant fleet, and

¹⁷⁷ *Id.* at ll. 106-116.

¹⁷⁸ CEPR-SGH-001-016(a)-Supplemental at 22. Commission's Second Request of Information (June 23, 2016).



seeking substantial renewable energy."¹⁷⁹ Instead, by relying on Aguirre, PREPA has "created a fleet that, by its own measure, cannot effectively take on renewable energy simply because its existing generators ramp too slowly."¹⁸⁰

e. Directives

- (i) Consistent with the IRP Order, PREPA shall limit spending on AOGP to \$15 million, reducing FY2017 revenue requirements by \$41,340,000.¹⁸¹**
- (iii) PREPA shall not sign a Limited Notice to Proceed or a Final Notice to Proceed at AOGP until it has submitted, and the Commission has approved, the AOGP Economic Analysis; or until the Commission resolves the Reconsideration under review.¹⁸² PREPA shall make no other commitments to incur future costs relating to AOGP without submitting a request and documentation to the Commission. If the Commission approves AOGP, PREPA may request an increase in the revenue requirement.**
- (iv) The Commission recognizes, as the Fisher-Horowitz Report says, that "[s]talling projects, cancelling vendors, or missing contractual deadlines could result in increased costs, damages, or potential legal actions by vendors." PREPA shall alert the Commission promptly—and factually—if such possibilities become imminent realities.**

¹⁷⁹ Fisher-Horowitz Report at 39.

¹⁸⁰ *Id.* at 39.

¹⁸¹ See Attachment 3, page 2.

¹⁸² PREPA in its brief opposes this requirement on grounds that it is an issue pending in the IRP case. The Commission is imposing the requirement in this case to prevent PREPA from spending money that would then appear in a future request to increase customer rates, which increase would likely be accompanied by a PREPA argument that the Commission has no choice but to approve the increase because the costs already have been incurred. This type of situation is precisely the type that Dr. Hemphill never solved (see Part Four), and which PREPA's opposition here reveals to be a problem.



- (v) *If and when PREPA needs to incur additional costs for "alternative investments" (i.e., alternatives to AOGP), it shall first seek and obtain Commission approval.*¹⁸³

4. Transmission

a. Description of the transmission system

231. PREPA's transmission system consists of aerial and underground wires. It interconnects PREPA's large, central station generating plants, sited in four main locations in the north and south, with a distribution system serving population centers. The transmission system runs through mountains and wet tropical forests—some of the most difficult terrain in the U.S. As described in the URS 2013 Report [at 3]:

The Authority's transmission system is an interconnected network of 230 kV, 115 kV, and 38 kV power lines that carry electrical power from the production plants to numerous distribution centers from where it is distributed to clients for consumption.

At the close of fiscal year 2013, the transmission system was comprised of 2,478 circuit miles of lines: 375 circuit miles of 230 kV lines, 727 circuit miles of 115 kV lines, and 1,376 circuit miles of 38 kV lines. Included in the transmission system totals are approximately 35 miles of underground 115 kV cable, 63 miles of underground 38 kV cable and 55 miles of 38 kV submarine cable. In addition to the high voltage lines, the transmission system includes transformers at the generating plant substations, transmission centers for interconnection of different voltage systems and switch yards and gear for connection or separation of portions of the transmission system operating at the same voltage. High voltage transformers installed in the Authority's transmission system and its production plants have a total transformer capacity of 19,207 MVA.

The Fisher-Horowitz Report adds:

The 230 kV system essentially forms a ring around the island's less populous interior, connecting major cities and towns. In addition, PREPA maintains two substantial north-south corridors from Salinas (near Aguirre and the AES plant) to San Juan, and from Guayanilla (near EcoEléctrica and Costa Sur) to Arecibo and Manatí on the north coast. The primary operational thermal

¹⁸³ Windmar argues that PREPA should retire obsolete power plants and study replacing them with smaller, flexible and more efficient plants as required by Act 57-2014. This is an important recommendation that is consistent with the recommendations in the Fisher-Horowitz Report, our conclusions in this Order and the directions stated in our recent IRP Order.



generation in Puerto Rico is located on the south coast EcoEléctrica, Costa Sur, Aguirre, and AES coal plant. The transmission system is designed to facilitate the flow of energy from these plants to the primary population centers in the north, Cambalache, on the north coast near Arecibo, and Mayagüez, on the west coast, provide peaking generation.

b. Transmission system capital budget

232. PREPA proposes a FY2017 transmission revenue requirement of \$81.3 million, spread over 100 separate line item projects.¹⁸⁴ About 68% of the proposed FY2017 spending is concentrated in the 230 kV and 115 kV systems, primarily on line rehabilitation. The proposed cost is about \$50,000 per mile in FY2017 for those larger systems, less for the 38kV system.

233. Half of the FY2017 dollars proposed for transmission (\$40.5 million) would replace structures, towers, foundations and insulators on high capacity transmission lines, including those in the following corridors:¹⁸⁵

1. Two 230 kV lines (50900, 51000) from Aguirre to Aguas Buenas, just south of San Juan (south-north): \$15.7 million.
2. 115 kV line (37800) from Jobos near AES to San Juan (south-north): \$13.4 million
3. 115 kV line (37400) from Arecibo to San Juan (east-west): \$4.4 million.
4. 115 kV line (36100) from Lago Dos Bocas towards Piñas, on the outskirts of San Juan. (east west): \$7.0 million.

As in all of PREPA's other capital projects, these numbers represent the amounts to be incurred in FY2017, rather than total project costs. Drs. Fisher and Horowitz state that based on project data, PREPA expects to spend ultimately (not in FY2017 alone) about \$600,000 per mile on the 230 kV system and, on average, about \$700,000 per mile on the 115 kV system. Drs. Fisher and Horowitz view these costs as consistent with utility estimates for similar projects.

234. The largest component of the 38 kV capital budget for FY2017 is allocated to the rehabilitation of the 38 kV system. This category has 24 specific projects, only one of which exceeds \$1 million. These smaller projects are described by PREPA as "improvements" and

¹⁸⁴ See the Fisher-Horowitz Report at Table 15, consolidating PREPA's transmission capital budget by sub-area and initiative. See also PREPA's Schedule F-3 REV.

¹⁸⁵ Schedule F-3 REV.



"increase[s] [in] capacity." Our consultants found that these projects, and their costs, are consistent with PREPA's needs to strengthen the system. The only project exceeding \$1 million in FY2017 is a reconstruction of seven miles of line near Mayagüez (PID 15610). This project replaces rotting wooden poles with steel, effectively re-building the line. The Fisher-Horowitz Report states that the cost is consistent with utility estimates for similar projects.¹⁸⁶

235. In addition to the foregoing line-related costs, there are assorted non-line items, most of which according to Drs. Fisher and Horowitz are lower-cost, individual items whose reasonableness is difficult to assess without an engineering audit.

c. Directive

Based on the information provided by PREPA and its examination and assessment in the Fisher-Horowitz Report, as well as the discussion at the technical hearing, the Commission approves the full FY2017 transmission system capital budget as requested by PREPA.

5. Distribution

a. Description of the distribution system

236. The PREPA distribution system is divided into seven regions with 26 Technical Districts.¹⁸⁷ From the 2013 Consulting Engineers Report (at 17):

As of June 30, 2013, the Authority's distribution system consisted of approximately 31,550 circuit miles of distribution lines (with operating voltages ranging from 4.16 to 13.2 kV) and 333 substations (with a total installed capacity of 5,018 MVA). The distribution system has more than 1,800 circuit miles of underground lines. The Authority has 22 portable transformers with a total capacity of 349.6 MVA to substitute for existing transformers during maintenance or outages; similarly, the Authority has two portable capacitor banks each rated at 18 MVAR. There are 813 privately owned substations (with a total installed capacity of 3,266 MVA). The distribution system also includes approximately 1,485,200 client meters.

237. Of the 31,550 circuit miles of distribution lines, approximately 24% are at 13.2kV, 24% at 8.32 kV, and the remaining overhead lines are at 4.16 kV.¹⁸⁸ Over 16,000

¹⁸⁶ Fisher-Horowitz Report at 139.

¹⁸⁷ CEPR-AH-02-06 at 8. Commission's Sixth Request of Information (July 29, 2016).

¹⁸⁸ URS June 2013 Annual Report at 55.



circuit miles are primary voltage.¹⁸⁹ In addition PREPA has approximately 2,100 circuit miles underground, three-quarters of which is 13kV.¹⁹⁰ PREPA also has approximately 333 substations. According to the URS 2013 Report:¹⁹¹

The Authority has standardized on two sizes of permanent substations based on the transmission system supply voltage. This standardization expedites the engineering, procurement, and construction cycle, increases flexibility in potentially utilizing equipment as spares, and provides a cost effective installed capacity margin for load growth. In situations where the Authority needs additional substation capacity on an interim basis or with short lead times, the Authority installs temporary substations that are standardized unitized metal clad equipment, which can be relocated as required.

As with the transmission system, PREPA emphasizes the need for repair:

In general, PREPA Distribution system is in operational state or condition, but with reliability concerns, due to aging of the components. Still a high percentage of overhead ("OH") distribution circuits are attached to wood poles in deteriorated conditions, with OH cables gages inappropriate to serve the electrical load in a reliable and qualitative manner. Taking a look to the underground ("UDG") Distribution circuits, a significant number of them have been replaced in "temporary" way by OH circuits thru street lights poles, to reestablish electrical service to customers when outages cannot be fixed repairing the UDG conductor. Most of the UDG circuits in residential communities (Urbanizations) with more than 30 years of existence are direct burial, which accelerate the cable deterioration and prevent replacing cables in reasonable time and avoid repeated interruptions in the future. This also increases the reconstruction and maintenance costs when intervention is required. In addition to the Distribution Electrical network (OH &UDG), the sites (substations) where main power distribution transformers reside are in advance state of deterioration. Most of the components need to be replaced and perform continuous maintenance to grounds and buildings.¹⁹²

¹⁸⁹ CEPR-AH-02-01 at 1. Commission's Sixth Request of Information (July 29, 2016). Primary voltage lines link transmission substations with transformers, which "step down" the electric current to secondary voltages so that it can be delivered to customers.

¹⁹⁰ CEPR-JF-02-06(a) at 22. Commission's Seventh Request of Information (August 12, 2016).

¹⁹¹ URS 2013 Report at 51.

¹⁹² CEPR-AH-02-01 (f) at 3. Commission's Sixth Request of Information (July 29, 2016).



b. Distribution budget in general

238. PREPA proposes a FY2017 distribution capital budget of \$74 million, spread over 108 line items. About 85% of the \$74 million is for non-meter spending. Table 16 in the Fisher-Horowitz Report organizes the budget by sub-area and initiative.¹⁹³

239. According to Drs. Fisher and Horowitz, most of the proposed spending is for rehabilitating the existing distribution system, substations, feeders and lines.¹⁹⁴ The spending includes \$27.3 million for "blankets"—pools of money used as needed for repairs, maintenance and replacement parts. Another \$12.5 million is allocated to new meters and meter equipment. The remainder (slightly over 50%) is targeted towards street lighting, along with rehabilitation of substations and feeders.

240. Of the 78 distribution projects that had FY2017 spending and were not either explicitly blankets or meters, the average FY2017 cost was well under one million dollars, with a median cost of about \$250,000.

241. Assessing the reasonableness of these dollars was a challenge. Beyond calling them "required improvements," PREPA did not provide justification or explanations for the individual projects. Furthermore, PREPA's records of past capital spending were categorized differently from those associated with future spending. In a public technical conference call, however, PREPA's distribution staff answered questions thoroughly, in the opinion of Drs. Fisher and Horowitz, stressing that (a) the requested spending level was a necessary beginning to restoring the distribution system, and (b) the capital budgets were likely lower than required to ensure reasonable service. At the technical hearing, PREPA's witnesses re-emphasized these points.

c. Meter capital budget

242. PREPA has 1,620,401 installed meters, active and inactive.¹⁹⁵ For its FY2017 through 2019 revenue requirements, PREPA has requested \$10.6 million per year to buy residential meters. This amount does not include maintenance or operating expense. These purchases are part of a replacement plan emphasizing equipment upgrades. PREPA would acquire in FY2017 29,000 meters, an estimated cost of \$200/meter plus communication infrastructure. Installing new technology (advanced metering infrastructure—known as AMI or smart meters) adds approximately \$198 per meter.¹⁹⁶

¹⁹³ See also PREPA Schedule F-3 REV.

¹⁹⁴ Fisher-Horowitz Report at 143.

¹⁹⁵ CEPR-JF-02-05 at 19. Commission's Seventh Request of Information (August 12, 2016).

¹⁹⁶ CEPR-AH-02-06 at 8. Commission's Sixth Request of Information (July 29, 2016).



243. As described by Drs. Fisher and Horowitz, smart meters are capable of two-way communication between individual meters and the utility. The two-way communications can provide "interval data" (data that is specific to short periods of time) at a level of frequency (*e.g.*, every 15 minutes) that radial and AMR meters cannot provide. Drs. Fisher and Horowitz questioned the cost-effectiveness of the additional cost of smart meter technology. They recommended that the Commission not approve the extra funds necessary for smart meters; rather, PREPA should install only the current meter models.

244. In 2015, PREPA initiated a pilot program to install 30,000 smart meters in two phases. A July 2015 presentation provided an overview of PREPA's goals (translated):

1. Gather the necessary data to raise the specifications of the optimal system for electric system.
2. Improve the efficiency of the electrical system.
3. Significantly improve the service offered to customers, such as SAIDI, SAIFI, CAIDI and thus reduce the need for management in the commercial offices and Customer Service Center (telephones).
4. Enable automatic remote disconnect and disconnect, to improve service and to allow service cut-off, thus improving cash flow.¹⁹⁷

PREPA's goals in pursuing smart-grid technology are similar to those of other utilities installing smart grid.

245. Drs. Fisher and Horowitz assert that "[u]tilities have generally found it difficult to justify smart grid technology on a cost effectiveness basis."¹⁹⁸ While PREPA cited Hawaii as an example, Drs. Fisher and Horowitz found this example faulty, because "the deployment cost of \$413 million would likely exceed the \$345 million in estimated benefits for the project."¹⁹⁹ They also assert that a later PREPA presentation, in July 2016, "clearly indicates that the smart meter program would not be expected to provide cost savings, and is a distraction from PREPA's immediate requirements."²⁰⁰ They also point out that over half the

¹⁹⁷ Commission's October 20, 2016 Clarification Call Request 161020 No.8 Attachment 1: Slide 3.

¹⁹⁸ Fisher-Horowitz Report at 147.

¹⁹⁹ Hawaiian Electric Companies, Application, Table 2, Page 8, March 31, 2016, Docket 2016-0087.

²⁰⁰ Fisher-Horowitz Report at 147.



meters supplied had to be returned for re-calibration, and that the island's mountainous terrain will make cellular communication difficult.²⁰¹

246. The Commission appreciates the efforts by PREPA and our own consultants to assess the benefits and costs of smart meters. We conclude that the efforts already begun, the small amount of dollars at stake, the potential to help consumers manage their consumption, justify this small continuation of an existing pilot program. Therefore, we will approve this funding request.

247. We do, however, share our consultants' concern with spending multiples of this amount in future years without a stronger business case.

d. Directives

- (i) *The Commission approves the full FY2017 distribution system capital budget as requested by PREPA. PREPA shall continue acquiring advanced meter reading ("AMR") meters unless a specific application requires advanced meter infrastructure ("AMI"). If PREPA wishes to acquire smart meters above the 30,000 already acquired without a specific technical application need, it shall submit a detailed business case describing and evaluating the costs and benefits of smart meter deployment. The business case should provide detail of the scope, scale and schedule of deployment, including but not limited to technological and financial issues. It should take into account the need for staff and consumer education for effective meter use.***
- (ii) *PREPA should not commit to any greater expenditure than what is approved here, without approval of the Commission.***
- (iv) *For future purchases of meters, PREPA shall use competitive bidding.***

6. Transportation and Computer Equipment

248. PREPA proposes \$19.4 million for vehicles. PREPA maintains a fleet of 3,593 vehicles, of which approximately one-third are SUVs or basic pickup trucks. Another third of the vehicles are either trailers or highly specialized vehicles (such as bulldozers, cats,

²⁰¹ *Id.* at 146-47.



trenchers and loaders). The remaining vehicles are either bucket trucks or other line vehicles. Another \$3 million is for a replacement helicopter.

249. PREPA also proposes \$13.1 million for computer equipment, data management systems and new network equipment. The most substantial request is a data center migration to PREPANetwork, costing \$8 million (\$6.3 million in FY2017). Using an affiliate (PREPANetwork) for the data center raises the concerns we discuss in Part Five-II. PREPA should have used competitive bidding to select the best provider. Given the immediate need to improve data collection, analysis and reporting, we will not delay this transaction. But future affiliate transactions must adhere to the principles discussed in Part Five-IV.

250. Given the small size of this area and our obvious focus on the larger questions of generation, transmission and distribution, and given that no red flags were raised by our consultants or the intervenors, we approve the full FY2017 transportation and computer equipment budget.

7. Overall findings on capital expenditures in the revenue requirement

251. PREPA shall include \$153.462 million for capital expenditure in PREPA's revenue requirement. This is a reduction of approximately \$183.096 million from PREPA's request of \$336.558 million. Most of this reduction consists of reclassifications rather than actual reductions. Specifically, the \$183,096 million reduction reflects the following (as explained in Attachment 3, page 2:

- \$125.756 million is an adjustment for the amount of capital expenditure recognized in the debt service coverage ratio.
- \$41.340 million reflects the required reduction in spending for AOGP.
- \$16 million reflects reclassification of capital expenditures at Cambalache and San Juan to operations and maintenance expense.²⁰²

D. CILT and subsidies

252. PREPA has proposed specific amounts for the contribution in lieu of taxes ("CILT") and various other subsidies. Most of these items are required by statute. For most of these items, PREPA's proposed amounts are predictions, although some are fixed. In most situations, our statutes do not give us discretion to judge the reasonableness of these amounts. Furthermore, any variation between the predicted and actual amount will be

²⁰² Another way to understand the \$153.462 million is to take the original capital expenditure figure proposed by our consultants, shown on Smith-Day Ex.3 l. 23 as \$148.662 million, and add back the \$4.8 million for smart meters that our consultants had removed.



reconciled either in a specific rider (discussed in Part Three-III below) or in the one-year budget examinations (discussed in Part Four-III[A] below). Consequently, the Commission approves each amount proposed by PREPA. As set forth on Attachment 1, those amounts are:

- CILT: \$51.784 million
- Public lighting: \$93.241 million
- All remaining subsidies: \$37.901 million²⁰³

The Commission here offers brief comments on two of these items. Remaining comments about their appropriate treatment appear in Part Three-IV.

CILT

253. PREPA has proposed CILT amount of \$51.784 million. PREPA claims that this amount reflects \$20 million in CILT savings, reflecting among other things PREPA's collections from for-profit businesses conducted by municipalities, as well as charges to municipalities for electricity consumption above the statutory cap (below which municipalities are not charged for consumption).

254. Historically, PREPA has recovered the CILT through a 0.89 factor in the denominator of its Fuel and Purchased Power Adjustors. The Legislature has prohibited this approach. Consequently, PREPA proposes to recover this amount through a separate "rider." This item is reflected in Attachment 1 at line 14.

Directive

PREPA shall provide to the Commission a report describing its efforts to bill and collect from municipalities in regard to the consumption of electricity at for-profit businesses affiliated with such municipalities.

Irrigation District

255. The "Irrigation District" is a division within PREPA that sells water. It consists of (1) the Guayama and Juana Díaz Irrigation Districts, in the south (PREPA refers to these as "SOUCO" and has grouped them together in its calculation of the subsidy); (2) the Valle de Lajas Irrigation District, in the southwest; and (3) the Isabela Irrigation District, in northwestern Puerto Rico. According to PREPA, 48% of the water produced by the Irrigation

²⁰³ This number reflects the elimination of \$37.041 million due to the double-counting discussed in Part Two-I above and \$129,000 for reclassification of the Direct Debit Credit as an Operating Expense, as discussed in Part Three-IV. See also Attachment 2 and Attachment 3, page 10.



District is used to serve bona fide agriculture clients, whereas 50% is sold to PRASA. The remaining 2% is sold to commercial and industrial clients.

256. The rates for the agriculture clients are set by law.²⁰⁴ For non-agriculture clients, the Irrigation District sets its rates by, in the words of PREPA's Mr. Rivera, PREPA's Superintendent of Planning and Research, "negotiating" with its customers. When the Irrigation District's water rates fail to cover its costs, PREPA makes up the difference by raising rates to its electric customers—customers who are excluded from the negotiations.²⁰⁵ This difference is known as the Irrigation District Subsidy. PREPA projects a FY2017 subsidy of \$4.152 million.

257. The arrangement is inefficient and illogical. It is inefficient because non-agricultural water rates should cover their costs, unless a reduction from cost is necessary to ensure that the customer will remain "on the system" to contribute something to fixed costs—a concept we will discuss in the context of the load retention discount at Part Three-II(C)(4). Any departure from cost should be reviewed by the Commission to ensure it is no greater than necessary to retain the customer. It is illogical when two parties "negotiate" a discount whose cost is borne by customers excluded from the negotiations, when this happens the fiscal discipline that normally accompanies negotiations is missing.

258. While the Commission has no choice but to approve the FY2017 subsidy, it will not approve this amount in the future, unless PREPA demonstrates (before the negotiations are complete) that the discount is no greater than necessary and that ICPO and at least one prominent commercial or industrial customer have participated in the negotiations and received all relevant information.

259. Contrary to PRASA's suggestion, the Commission is not asserting jurisdiction over the water sales from PREPA to PRASA. Nor is the Commission affecting the terms of any existing water contracts or intervening in the negotiations over water rates. The Commission is asserting its jurisdiction over PREPA's revenue requirement. PREPA's revenue requirement—and thus the charges electricity customers must pay—are affected by the Irrigation District's deficit. Therefore, the Commission has not only discretion but a duty to ensure that such deficit is reduced to the minimum allowed by the statute. Exercising such jurisdiction over the electricity rates does not amount to exercising jurisdiction over water rates, because it leaves PREPA with the choice of how to eliminate the deficit—

²⁰⁴ See Public Irrigation Act of September 18, 1908, as amended and supplemented by Act 63 of June 19, 1919 and Act 2 of May 31, 1950; 22 L.P.R.A. § 251 et. seq., 22 L.P.R.A. § 301 et. seq. and 22 L.P.R.A. § 341 et. seq., respectively.

²⁰⁵ Although Section 24 of Act 83 of May 2, 1941, as amended, states that the Commonwealth of Puerto Rico will reimburse PREPA for the costs associated to the Irrigation District, several PREPA officials stated during the Technical Hearing that the Commonwealth has not made any reimbursement payments in years.



reducing its own costs, raising its water rates or transferring its Irrigation District operations to others who can operate them without a deficit. All the Commission is doing is setting electricity rates appropriately.

260. Finally, PRASA's proposal to transfer the Irrigation District to PRASA is outside this Commission's authority.

E. Finance costs

1. Amount of debt service in the revenue requirement

261. PREPA projects debt service of \$314 million, consisting of \$172 million in principal payments and \$143 million in interest payments. This amount is reflected in Attachment 1 at line 19.

262. PREPA's debt falls into two main categories: (1) debt that, on completion of the current negotiations, will be collected by PREPARC through the Transition Charge (known as "Participating Debt"); and (2) all other debt (known as "Legacy Debt"). In this rate case, the Commission has no jurisdiction to address the Participating Debt. We deal here only with the Legacy Debt.²⁰⁶

263. A recent report published by the Puerto Rico Commission for the Comprehensive Audit of the Public Credit²⁰⁷ raises important questions about the reasonableness of certain PREPA debt issuances. However, because PREPA's contractual obligation to pay the interest and principal due on that debt remains, Section 6.25(b) of Act 57-2014 leaves the Commission no choice.²⁰⁸ With respect to the Legacy Debt, PREPA's revenue requirement for FY2017 must include all principal and interest payments due in FY2017.

²⁰⁶ To emphasize the terminology: Some observers have used the term "legacy debt" to refer to all current PREPA debt. That is not an accurate use of the term. We use the term "legacy debt" to refer only to the debt that must be reflected in the portion of PREPA's revenue requirement over which the Commission has jurisdiction. Debt that becomes "participating debt" will be recovered through the Transition Charge collected by PREPARC. While that amount is part of the *total* PREPA revenue requirement, it is not part of the revenue requirement that is subject to our jurisdiction and that is at issue in this proceeding.

²⁰⁷ *Pre-audit Survey Report of the Puerto Rico Commission for the Comprehensive Audit of the Public Credit*, September 28, 2016.

²⁰⁸ "The Commission shall approve a rate that: (j) is sufficient to guarantee payment of principal, interest, reserves, and all other requirements of bonds and other financial obligations that have not been defeased as part of the securitization provided in Chapter IV of the Electric Power Authority Revitalization Act, and reasonable costs of providing the services of the Authority"



264. To determine the appropriate amount of debt service costs to include in PREPA's FY2017 revenue requirement, PREPA had to make certain assumptions about which bondholders would become Participating Bondholders and which would remain holders of Legacy Debt. PREPA assumed that \$700 million of the uninsured bonds would remain as Legacy Debt. This amount is the maximum amount allowed by the Restructuring Support Agreement, as it exists today. PREPA then apportioned that \$700 million according to the percentages of the types of debt existing at PREPA prior to the restructuring.²⁰⁹ The total amount produces a revenue requirement of \$314,319,000. Commission Consultant Hill determined that the method by which PREPA made this estimate was reasonable. The Commission accepts it—recognizing that the number is certain to change when the restructuring negotiations are complete. Any divergence of the final number from this estimated number will be addressed in one of the proceedings discussed in Part Four.

265. The discussion of how debt service will affect the revenue requirement does not end here. The final debt costs to PREPA's ratepayers will depend on the application of the Puerto Rico Oversight, Management, and Economic Stability Act ("PROMESA"). Under Section 601 of PROMESA, if a certain percentage of bondholders elects to participate in a debt restructuring, the PROMESA Oversight Board can require the remaining bondholders to participate as well. If that result occurs, the debt now considered Legacy Debt (*i.e.*, the debt associated with the \$314 million in debt service) would move out of PREPA's FY2017 revenue requirement and into PREPARC revenue requirement, to be recovered through the Transition Charge. Ratepayers would save money because all the debt, rather than only the Participating Debt, would be subject to the 85% recovery cap, the lower interest rate and the five-year principal holiday called for by the RSA. And to the extent the PROMESA process causes existing Participating Bondholders to accept additional limits on their recovery, ratepayers will also be better off.

266. For these reasons, the Commission orders PREPA to take all actions possible to use the PROMESA process for the advantage of PREPA customers. If and when these changes occur, PREPA shall inform the Commission of the necessary changes to the revenue requirement. On receiving that information, the Commission will determine how and when to adjust the revenue requirement.

²⁰⁹ See PREPA's response to CEPR-SGH-03-05. For more detail, see the revenue requirements testimony of witnesses Pampush, Porter and Stathos (at 17), along with Schedule F-4-Section IX. There PREPA explains that an estimated \$1,595 million of debt is assumed to remain outstanding at PREPA. This amount includes \$696 million and \$35 million in debt held by the fuel lines and Government Development Bank Letter of Credit, respectively, as well as (i) \$700 million of uninsured bonds (the maximum allowed the RSA), and (ii) \$164 million of Syncora bonds following the debt service payment of July 1, 2016.



2. Debt service coverage ratio

267. Attachment 1 calculates the debt service coverage by multiplying the \$314 million of FY2017 principal and interest by a debt service coverage ratio of 1.40. That amount, \$126 million, is reflected in Attachment 1 at line 21.²¹⁰

268. A debt service coverage ratio ("DSCR") is the ratio of the cash flow available to meet or cover the debt service payments (interest and principal) to the amount of those payments for a particular time period. Suppose a utility's required principal and interest payments in the current fiscal year total \$100 million. Suppose further that rates are established such that if the utility sells the amount of electricity projected and its expenditures are the amount expected, its available cash flow will be \$120 million. We would say that the utility's actual DSCR is 1.20.

269. Mr. Hill explained that bondholders typically require a DSCR greater than 1.0 because the revenue and expense levels used to compute rates are only estimates. The real world—hurricanes, power plant failures, fuel price increases and economic slowdown—inevitably intervene, causing outcomes to vary from projections. Despite these variances, bondholders still need to be paid. An ample DSCR reduces the risk that the utility will lack sufficient cash flow to pay all of its obligations, including the obligation to its bondholders. That lower risk translates into lower interest rates.²¹¹

270. There is no "right" DSCR level; rather there is a need to balance the support necessary for a financially healthy utility against the cost to ratepayers.

271. The 1974 Trust Indenture, under which PREPA issues its revenue bonds (bonds in which the borrower's obligation to repay is secured by its revenues), requires a DSCR of 1.20. Part Two-II(B) explained that PREPA's poor financial condition has shut it out of the capital market. Given the need to improve PREPA's financial condition and to begin increasing bondholder confidence, Mr. Hill recommended a DSCR of 1.40 rather than the 1.20 required by the 1974 Trust Agreement. Drawing special attention to PREPA's \$2 billion negative net position, he stated:

[W]hen the investment community loses confidence in the ability of an entity to pay its debts, it is difficult to win back that confidence. Providing only the minimum amount of Debt Service Coverage required by the bond indenture is

²¹⁰ See also Attachment 3, page 1.

²¹¹ Mr. Hill noted that according to the American Public Power Association's *Financial and Operating Ratios of Public Power Utilities* (November 2015), the median debt service coverage ratio for long-term debt service for the public power industry is 2.32. For the publicly-owned utilities with more than 100,000 customers, the median DSCR is 1.85.



not sufficient to signal the investment community that PREPA intends to establish its financial position as a reliable lender.²¹²

He described the 1.40 DSCR as sufficient to enable PREPA's return to a BBB (investment-grade) rating.

272. Mr. Hill's approach contrasts with that of PREPA's witnesses, who recommended a more expensive 1.57-2.00 DSCR to reach a AA rating. According to Mr. Hill, if the debt service is \$314 million, every one-tenth added to the ratemaking DSCR increases ratepayers' cost by \$31.4 million. He asserted that PREPA's advisors, by attempting to move PREPA from a C or D rating to A or AA, were not sufficiently considering the effect on ratepayers. At the technical hearing, Mr. Hill used a spreadsheet²¹³ to show that the PREPA witnesses' proposal would cost the ratepayers more in debt coverage than they would save in interest rate reductions, by a large amount. Given the current low capital costs, this negative benefit-cost ratio was likely to persist. Mr. Hill reasoned that his "more moderate DSCR would improve PREPA's financial position and would also be cost-effective for PREPA's ratepayers while returning PREPA to investment-grade status." He also emphasized that the credit improvement offered by his proposed 1.40 DSCR will be enhanced by the use of the rate procedures described by PREPA Witness Hemphill and Commission consultant Tim Woolf.²¹⁴

273. We agree with Mr. Hill's view that a DSCR of 1.40, well above the minimum 1.20 required by the 1974 Trust Indenture, will signal to the investment community the Commission's support for PREPA's efforts to improve its financial position.

274. Finally, at the technical hearing Mr. Hill and the PREPA witnesses agreed that as long as the revenue requirement includes capital expenditures in current rates (a provision the Commission approved in Part Two-III(C)(7)), there is little practical difference between a 1.40 coverage ratio and a 1.57-2.00 coverage ratio, because the amount of capital expenditure included in the revenue requirement exceeds the amount associated with either coverage level. At such time that including capital expenditures in rates is no longer necessary, however, Mr. Hill's 1.40 DSCR would mean substantial ratepayer savings relative to PREPA's proposed 1.57-2.00.

3. The prospect of renegotiating debt service

275. Some intervenor witnesses argued that PREPA's debt is too high and should be renegotiated downward. These arguments do not have practical value, for two reasons.

²¹² Hill Report at 22.

²¹³ Commission's Technical Hearing Exhibit 3.

²¹⁴ In Part Four, the Commission addresses the Hemphill and Woolf proposals and adopts various budget examination procedures.



276. First, as we detailed in our June 2016 Restructuring Order, PREPA has already obtained from bondholders a 15% reduction in principal, lower interest rates and a five-year deferral of principal. No intervenor presented evidence that PREPA could have obtained more concessions had it bargained more effectively. No intervenor presented evidence that the relationship between PREPA and its bondholders was other than arm's-length. PREPA's lead negotiator was Alix Partners. Ms. Donahue, PREPA's Chief Restructuring Officer, testified at the Technical Hearing that while the bondholders required PREPA to hire a restructuring team, the decision about whom to hire was PREPA's. Alix Partners had to compete against three other companies for the job. No intervenor lawyer cross-examined Ms. Donahue on this point. In a political setting, it may be acceptable to complain about costs. In an administrative adjudication, arguments require evidence. On the question of whether PREPA could have negotiated a better arrangement, intervenors offered no evidence.

277. Second, arguments must be guided by law. While the Commission has authority to approve future debt, it has no authority to adjust the outcome of the PREPA-bondholder negotiations. In administrative litigation, it is the responsibility of attorneys to ensure that expert testimony remains within the legal boundaries that bind the forum. In this instance, some intervenor attorneys failed to heed this responsibility. The Commission expects that this type of professional error will not be repeated.

4. Future bond issuances

278. No longer can PREPA use debt as a means of avoiding rate increases. Debt is appropriate, however, for long-term investments whose value justifies their costs. Oversight of future bond issuances must address their purposes, cost and timing, as well as PREPA's ability to repay. That oversight must be performed by PREPA's Board, the Consulting Engineer and, of course, this Commission. To that end, Section 6(o) of Act 83 provides:

Except for the bonds and other financing instruments related to the Authority's restructuring pursuant to the agreements entered into with the creditors of the Authority, whose debt parameters shall be governed by the provisions of Chapter IV of the Electric Power Authority Revitalization Act and the Creditors' Agreement, before borrowing any money or issuing bonds for any of its corporate purposes, the Authority shall require the Commission's approval showing that the proposed financing shall be used to fund projects and defray the costs associated therewith in accordance with the Integrated Resource Plan and the Energy RELIEF Plan.

Section 6.3(n) of Act 57-2014 further provides that PREPA shall seek "written approval of the Energy Commission prior to the issue of any public debt." This type of regulatory review of utility debt issuances is common among mainland U.S. regulatory commissions. Also typical is a requirement that the utility submit, along with its request for approval, the following types of information, as all recommended by Mr. Hill:



(1) a prospectus for the debt issue (the document published for investor review of the debt offering); (2) a copy of the supporting Trust Indenture if it is different from the 1974 Trust Indenture under which all of PREPA's revenue bonds currently are issued; (3) a description of any special considerations associated with the new debt issue; (4) if not otherwise provided, a description of the expected yield, the term of the debt, a schedule of payments, and a comparison to current yields of similarly-rated bonds; and (5) five-year financial projections showing that the Company will be able to meet its indenture-mandated debt coverage ratio following the issuance of the new bonds.

The Commission anticipates issuing a rule establishing these requirements, well in advance of PREPA's regaining access to the capital markets.

5. Directives

- a. *PREPA shall include in its FY2017 revenue requirement \$314 million for debt service principal and interest.*
- b. *PREPA shall include a debt service coverage amount of approximately \$126 million, reflecting a debt service coverage ratio of 1.40 applied to the \$314 million in debt service.*
- c. *PREPA shall inform the Commission monthly on its progress regarding financial restructuring, including its efforts to obtain an investment grade credit rating for the new debt to be issued by PREPARC, and its meetings with members of the PROMESA Oversight Board. PREPA shall submit to the Commission copies of any formal presentations that it (or PREPARC) makes to credit rating agencies or to the PROMESA Oversight Board.*
- d. *PREPA shall use all reasonable efforts to persuade the PROMESA Oversight Board to provide the maximum debt service relief available, including demonstrating to that Board how the savings will benefit the Commonwealth's economy and its electricity consumers.*

F. Income from sources other than electricity sales

279. PREPA proposes for its FY2017 revenue requirement Other Income of \$38.925 million. This amount reflects income from sources other than charges for electric service. Examples of Other Income include: non-operating rental income, sinking fund interest income, and other miscellaneous income. This amount reduces the revenues needed to provide electric service. It is reflected in Attachment 1 at line 28.



Directives

1. *PREPA shall reflect a FY2017 amount of \$38,925 million in Other Income.*
2. *In future years, PREPA shall detail the basis for amounts included as Other Income.*

IV. Calculation of required revenue increase

A. Calculation of revenue requirement

280. The Commission adopts an adjusted base rate revenue requirement (excluding Transition Charge) of \$3,413,904,000.²¹⁵

281. To compute the additional revenue required to cover PREPA's needs, we must subtract the revenue it would receive under its current rates, assuming a forecasted level of sales, from the \$3.414 billion base rate revenue requirement adopted by the Commission. The difference is called the "deficiency": the amount by which revenues must be increased by increasing rates.²¹⁶ As shown on Attachment 1, lines 30 and 31 (Column A), PREPA expects current rates to produce \$1.658 billion in fuel and purchased power revenue and \$1.078 billion in base rate revenue at current rates, for a total of \$2.737 billion (the \$2.776 billion on Attachment 1, line 32 Column A is the sum of that \$2.737 billion plus the "Other Income" of \$38.9 million). We then increased that amount by the \$461.3 million in additional fuel costs projected by Drs. Fisher and Horowitz, to produce a revenue requirement (not counting the amounts covered by the Transition Charge) of \$3.237 billion.²¹⁷

²¹⁵ See Attachment 1, l. 26, Column C. To the original consultant-proposed figure of \$3,406,557,000 (Smith and Dady Ex. 3), we added back the \$4,800,000 relating to smart meters (see also Attachment 3, page 2), the \$624,000 related to stipulated fines and penalties that had been included in Smith and Dady Ex. 3 based on a miscommunication with PREPA (see also Attachment 3, page 7), the \$1,711,000 adjustment relating to reconnection fees (see also Attachment 3, page 9) and reflected a revised amount for Bad Debt Expense resulting from the impact of these other adjustments (see also Attachment 3, page 8). PREPA argued that there was a \$643,000 error in the CILT and Subsidy pass through line item. The Commission was not able to verify this, therefore has rejected this adjustment. The Commission has reconciled the CILT and Subsidies amounts as shown on Attachment 4. Such amounts, as adjusted by the Commission, reconcile to the amount reflected in the revenue requirement without any need for PREPA's requested correction.

²¹⁶ We discuss the sales forecast in Part Two-IV.B.

²¹⁷ See Attachment 1 at ll. 29-32.



282. Comparing this \$3.237 billion in current revenues (Attachment 1, line 32) with the Commission-approved revenue of \$3.414 billion (Attachment 1, line 26) indicates a revenue deficiency of \$177.0 million (as shown on Attachment 1, line 34). That revenue deficiency of \$177.0 million is approximately \$45.256 million less than PREPA's claimed revenue deficiency of \$222.256 million.

283. When the Commission established provisional rates on June 24, 2016, it used PREPA's full proposed revenue requirement (thus raising rates to eliminate an annualized \$222.256 million deficiency). Since the deficiency is only \$177.0 million, the Commission must return to ratepayers the excess amounts collected from them. We address that subject in Part Two-V. The Commission also needs to determine how to adjust specific rates under specific tariffs produce the new revenue requirement. We address that subject in Part Three-II.

284. Having determined the deficiency in dollars, we now need to determine the increase in existing rates (excluding the Provisional Rate) necessary to eliminate that deficiency. To do so, we need to divide the deficiency by the expected sales (in kWh) to arrive at the necessary cents/kWh increase. We thus turn to the question of sales next.²¹⁸

B. Forecasts of sales and load

1. The significance of sales and load forecasts

285. To satisfy its obligation to serve their customers' needs, a utility must accurately predict those needs. Then customers must pay rates calculated to produce the revenue necessary to serve those needs. Rates result from dividing the revenue requirement by the expected sales. Revenues (in \$) divided by sales (in kWh) gives us a rate (\$/kWh). Since we have determined the revenue requirement we now must forecast sales.

²¹⁸ Rejecting the proposed revenue requirement, as ICSE-PR recommends, would cause a shortfall of \$177,000,000 in PREPA's revenues—at a time when PREPA needs much more, as detailed by Drs. Fisher and Horowitz. It would leave PREPA unable to pay its bondholders, thereby weakening the agreement under which the bondholders have pledged not to declare default and sue PREPA for nonpayment. It would signal that this Commission fails to appreciate two realities: that without outside capital PREPA cannot rebuild its system, and that outside capital will not invest in PREPA without confidence that the Commission understands PREPA's financial needs. Our chosen path is careful and gradual: grant revenue increases only on a showing of need, require budgets to ensure appropriate spending of the revenues, investigate performance deeply to cause the necessary change in cultures, establish infrastructure priorities through the IRP process and require revenue requests to reflect the approved IRP, and heed the statutory requirement that rates must produce revenues sufficient to cover the principal and interest owed on outstanding debt. ICSE-PR's position heeds none of these requirements.



286. Utilities typically forecast two distinct things: total sales of electricity (in kilowatt-hours or megawatt-hours), and "peak load" (in megawatts).²¹⁹ The sales forecast expresses how much total energy the utility expects to sell over the course of a year. The peak load forecast states the maximum power the utility expects to need to serve all customers at any one time during that year.

287. The sales forecast is the denominator in various fractions used to set rates. Sales tells us the number of units over which a particular cost must be recovered. Where a utility collects its revenue requirement through sales of kWhs, the numerator is the revenue requirement (in \$), while the denominator is sales (in kWhs), giving us a rate in \$/kWh. When the utility collects its fuel costs through a fuel clause, again the fuel costs are in the numerator (in \$) and the sales are in the denominator (in kWh). Predicting sales accurately is crucial to setting rates correctly.

288. An accurate sales forecast is also necessary for utility budgeting. Expectations of total spending on fuel, purchased power, and operations and maintenance all depend on expectations of sales, because increased sales lead to increased costs in each of those categories.

289. Like other utilities, PREPA uses forecasted sales as an input into PROMOD, the production cost model described in Part Two-III.B above. To calculate the total amount of energy it needs to generate every year, PREPA needs a sales forecast. This information, along with other data such as fuel cost, operating cost and data on generation performance (such as how quickly specific units can ramp up and ramp down) are input into PROMOD. PROMOD then determines an optimal dispatch pattern for the utility generation fleet for a given period. PROMOD also predicts the costs (as well as expected fuel consumption, emissions, and other system behavior) associated with that dispatch pattern. Different sales forecasts lead to different dispatch patterns with different associated costs.

290. Both sales (kWh) and peak (MW) forecasts can thus affect utilities' planning for a variety of periods—days, weeks, months, years and decades. Peak load forecasts are the key input to determinations of resource adequacy. Local or system-wide increases in peak demand can cause the need to install new generation and transmission facilities. Peak forecasts also shape cost of service studies, which affect allocation of revenue responsibility (as discussed in Part Three-I).

2. Acceptance of the forecast for FY2017

291. The Fisher-Horowitz Report (at Part IV) presented an extended critique of PREPA's approach to sales forecasting. The critique questioned the support (in terms of model design and data) for PREPA's forecasts, the accuracies of past predictions, the

²¹⁹ Peak load, sometimes called peak demand refers to the maximum amount of power that a utility must supply, to keep the lights on, at any one moment of a year.



treatment of energy efficiency, the calculation and use of elasticity of demand, and²²⁰ discrepancies between sales predictions and numbers actually used in the revenue requirements model. At the technical hearing, Dr. Horowitz and PREPA personnel had an extensive and deep debate over their contrasting positions.

292. The one agreement was that PREPA's forecast for FY2017 was acceptable. For purposes of this case, therefore, the Commission will accept it. The Fisher-Horowitz Report points that when PREPA forecasts one year ahead or one month ahead, the difference between prediction and actual is small, and comparable to the difference experienced by other utilities. Moreover, the extent PREPA's revenues are affected by incorrect short-term forecasts, corrections can be made in the adjustor clauses and the one-year budget examinations or the three-year rate proceeding.²²⁰ The disagreements concern forecasts over longer periods.

293. With so many immediate issues to address in the short time allowed for this proceeding, it is not possible to resolve the many differences that have arisen over forecast methodology. The dialogue at the technical hearing made clear that PREPA and the Commission will benefit from a deeper exploration. From that deeper exploration, the Commission can establish guidelines for future forecasts. The result will be fewer disagreements and over and greater confidence in PREPA's forecasts. The Commission will address this topic within the next few months.

3. Directives

294. We will adopt the following recommendations from the Fisher-Horowitz Report, but will schedule a technical discussion to give them more precise shape:

- a. *PREPA shall develop a single, reliable, theoretically sound forecasting model for each rate class. Each model should be able to predict adequately historical sales.*
- b. *PREPA shall develop a new sales forecast based on these models prior to submitting to the Commission another planning or rate case.*
- c. *Any changes to PREPA's forecasting models in the future shall be clearly documented and supported by evidence.*
- d. *In submissions relating to forecasts, PREPA shall provide clear, comprehensive, and accurate methodological documentation, including work-papers showing all relevant*

²²⁰ We will discuss interim rate proceedings in Part Four.



inputs and calculations, along with note sources for all assumptions and hard-coded values.

- e. All forecasts shall explicitly account for energy efficiency, demand management and demand elasticity, by class and on a total system basis.*

C. Calculation of rate increase

295. PREPA's projected sales are 17,268,325,180 kWh.²²¹ Therefore, the average rate increase corresponding to the revenue requirement deficiency of \$177,000,000 is approximately 1.025 ¢/kWh. The average rate increase will be applied to the energy charge component of the base rate for all PREPA clients, except as described in Part Three-II.

296. Given the many directives and decisions made by the Commission in this Final Resolution and Order, PREPA shall calculate the actual rate increase for each tariff code and provide such information for Commission review and approval no later than February 15, 2017.

Directives

- a. As part of its compliance filing, PREPA shall submit no later than February 15, 2017 for Commission review and approval, the computation and description of the actual permanent rate increase for each tariff code and the language it will include in each customer's bill explaining the increase.*
- b. As provided in Section 6A(f) of Act 83, PREPA's permanent rates shall enter into effect 60 days from the date of approval of this Final Resolution and Order.*

V. Reconciliation of the new permanent rate with the provisional rate

A. Commission finding

297. The provisional rates approved by the Commission on June 24, 2016 were based on PREPA's projection of a deficiency of \$222.256 million. Since the Commission finds a deficiency of only \$177.0 million, the difference of \$45.256 million (annualized) must be returned to ratepayers, because the effective date of the new rates was July 27, 2016. How this money is returned to ratepayers is the subject of this subsection (relating to revenue requirement) and Part Three-II (relating to rate design).

²²¹ PREPA Ex. 3.0 at 39. See also PREPA Ex. 27.00.



298. The Commission's Rate Case Filing Rules at Section 2.02, Request for Provisional Rates, state:

Pursuant to Article 6.25(c) of Act 57-2014 and Section 6A(f) of Act 83-1941, when issuing a final order establishing permanent rates, the Commission shall order PREPA to adjust its customer's bills in order to credit or collect any difference between (a) the Provisional Rate charged by PREPA during the time period in which such Provisional Rate remained in effect and (b) the permanent rate which the Commission determines should have applied during such time period, so as to ensure that the Provisional Rates were just and reasonable. Such order shall reflect any upward or downward adjustment, effective as of the date the Provisional Rates were established, necessary to ensure the Provisional Rates were just and reasonable.

PREPA has stated that reconciling on an individual customer-by-customer basis would require changes to the customer billing system, costing approximately \$130,000 per month. Reconciling on a customer class basis would avoid this nearly \$910,000 (seven months times \$130,000 per month) cost—a cost which would be borne by ratepayers.

299. The Commission finds that benefits of perfect accuracy in customer refunds are not worth making customers pay this additional \$910,000 cost. PREPA shall credit the \$45.256 million (annualized) on a customer class basis. The reconciliation will take place starting with the first month the permanent rate will be in effect for the same number of months the provisional rate was in effect. The legal support for this conclusion is discussed next.

B. Legal analysis

300. The Commission must determine whether Section 6A(f) of Act 83 provides specific guidelines and requirements regarding how to adjust customer bills for the difference between provisional rates and permanent rates.

301. Because the Commission approves a Provisional Rate based only on a limited review of information accompanying PREPA's request, that rate will not necessarily be the same as the permanent rate approved after a full evidentiary hearing. The statute therefore requires the Commission to order PREPA to reconcile the difference between the provisional rate and the permanent rate. Reconciling means granting customers a credit to the extent the provisional rate exceeds the permanent rate, or requiring the customers to pay PREPA the difference if the permanent rate exceeds the provisional rate. The question is whether there needs to be a specific reconciliation for each of PREPA's 1.5 million customers or whether the reconciliation can occur for each customer class as a whole.

302. Section 6A(f) of Act 83 states:

Upon issuing any order after the rate review process, the Commission shall order the Authority to adjust customer's bills to credit or charge any difference



between the temporary rate established by the Commission and the new rate approved as a result of the rate review process. In the event a person ceases to be a customer during the effective term of the temporary rate, the Authority shall be required to issue a refund and shall be entitled to collect any difference between the temporary rate established by the Commission and the new rate approved as a result of the rate review process.²²²

303. While every customer will receive an adjusted bill, the question is whether the adjustment must address each customer's individual experience or whether the adjustment can be made to each customer class as a whole. The first sentence of Section 6A(f) provides that PREPA shall "adjust customers' bills". In this phrase, "customers'" is a plural possessive, signaling to us that we may make the adjustment for the entire class (the Spanish version, "ajustar la factura de sus clientes" also uses customers in the plural; neither the English nor the Spanish version say "each client"). Although it recognizes that such phrase may be interpreted as a reconciliation on a customer-class basis²²³, ICPO argues that Section 6A(f) requires permanent rates to be reconciled with provisional rates on a per-customer basis.²²⁴ ICPO's statement is based on a separate provision within Section 6A(f)—a provision requiring PREPA to refund to a sub-category of all customers—those who leave PREPA's system while the Provisional Rate is in effect. That portion of Section 6A(f) does not relate to whether the reconciliation mechanism must be customer-specific or on a customer-class basis. The purpose of the latter portion of Section 6A(f) is two-fold. First, it ensures that the reconciliation will benefit all customers, whether they are existing customers or whether they are former customers who have left the system after the Provisional Rate entered into effect.

304. Secondly, it distinguishes between existing and former customers for purposes of how PREPA would reimburse or collect any difference between the Provisional Rate and the permanent rate. Section 6A(f) specifically requires PREPA to, in the case of over-collecting (when the Provisional Rates is higher than the permanent rates), *credit* that difference to its current customers. In the case of customers who leave the system, Section 6A(f) provides that, in the case of an over-collection, PREPA would issue a *refund* to the customers. A credit entails a downward adjustment on the customer's bill, while a refund

²²² Similar language is found in Section 6.25(e) of Act 57-2014.

²²³ See ICPO's Legal Brief at 11, footnote 9. During the Technical Hearing, ICPO agreed with PREPA that the statute was broad and did not establish a specific mechanism for achieving the reconciliation methodology. ICPO further agreed that the statute did not require a customer-specific refund. Also, in response to questions from the Commission Staff, ICPO agreed that in determining the adequate reconciliation mechanism, factors like cost, time and resources should be taken into account to determine the reasonableness of a proposed reconciliation. ICPO further stated that, if customer-class reconciliation mechanism (as opposed to a customer-specific mechanism) benefited PREPA's customers, then such a mechanism would be allowed under Act 57-2014.

²²⁴ *Id.* at 11.

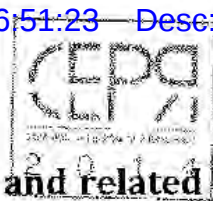


requires PREPA to physically disburse a determined amount of funds. The reason for the distinction is simple. An existing customer has a continuing relationship with PREPA, so PREPA may adjust its customer's bills to credit or collect any difference between rates. With a customer who has left the system, there is no continuing relationship, so there would be no subsequent bill for PREPA to adjust. In those cases, the Legislative Assembly provided that PREPA must issue a refund to such customers. Whether the amount to be reimbursed is calculated on a customer-specific or customer-class basis is irrelevant to how that amount is returned to the customer—either through a credit or a refund.

305. Section 6A(f) provides a simple mandate to the Commission: to ensure that each customer class pays the actual costs incurred by PREPA in providing electric services to that class. The phrase "adjust customers' bills" cannot be interpreted to mean that the Legislative Assembly required PREPA to study the seven-month billing history of each of its 1.5 million customers to calculate the exact amount each customer is entitled to receive or required to pay—especially where the difference between the provisional and permanent rates is small—as it is here. The phrase "adjust customers' bills" refers to the ordinary procedure of PREPA including on its customers' bill the necessary adjustments to credit or collect any difference between rates, and not to the specific process through which that amount is calculated. As such, we hold that Section 6A(f) does not require the Commission to approve a customer-specific reconciliation mechanism.

Directives

- 1. *The reconciliation of provisional rates with permanent rates shall commence when the permanent rates are in effect.***
- 2. *The reconciliation shall occur over the same amount of months that the provisional rates were in effect.***
- 3. *The reconciliation shall apply to the broad customer classes identified in Part Three-LA., rather than on a customer-specific basis. This approach will save the \$130,000 per month that PREPA has estimated would be required to reconcile per-customer.***
- 4. *Because of the small size of the difference between the provisional rates and the permanent rates, the reconciliation shall be done by adjusting the per-kWh charge, rather than by adjusting each element of a customer class's rate structure.***
- 5. *As part of its compliance filing, PREPA shall provide, no later than February 15, 2017, the following information: (i) the total amount (in dollars) to be credited to customers, (ii) the allocation among customer classes of the total amount to be credited, and (iii) the amount (in cents/kWh) to be credited to each customer class on every billing cycle.***



VI. Required improvements in PREPA's financial reporting and related procedures

306. Our review of PREPA's rate request was hampered by the absence of audited financial statements. The latest audited statements are for FY2014. PREPA informed the Commission that it "believes" we will receive the audited statements for FY2015 in January 2017.

307. The absence of current audited statements has several serious implications. First, PREPA's proposal for a "formula rate mechanism" (discussed in Part Four-II below) assumes availability of audited statements by October of each year. Basing annual updates to the revenue requirement on unaudited information risks basing rates on unreliable cost information. Second, the willingness of existing creditors to show lenience on existing loan terms, and of new creditors to grant new credit on reasonable terms, depends on their trusting PREPA's financial statements.

Directives

1. *PREPA shall take necessary steps to assure that its audited financial statements can be completed and made available on a timely basis.*
2. *PREPA shall submit to the Commission its Monthly Reports to the Governing Board. In addition, the report to the Commission will include the following:*
 - a. *explain significant variances between (i) budgeted and actual data, and (ii) current and prior year data.*
 - b. *provide information on Labor Costs, including how current month and year-to-date payroll, pensions, OPEBs and other employee benefit costs compare with prior year amounts and current year budgets.*
 - c. *provide information on PREPA's actual debt service coverage ratio.*
 - d. *provide information on the status of PREPA's financial restructuring, including significant events that have occurred during the reporting month.*
3. *PREPA shall allocate budgets for new initiatives and costs to specific functional areas, according to standards to be determined by the Commission.*



308. *Special directive regarding the Consulting Engineer:* The 1974²²⁵ Trust Indenture requires that for as long as any bonds issued under that agreement are outstanding, PREPA must retain an independent Consulting Engineer. Section 706 states:

It shall be the duty of the Consulting Engineers to prepare and file with the Authority and with the Trustee on or before the 1st day of May in each year a report setting forth their recommendations as to any necessary or advisable revisions of rates and charges and such other advices and recommendations as they may deem desirable.²²⁵

This broad language requires the Consulting Engineer must provide to PREPA and the Trustee opinions on rates, budgets, bond issuances and financial covenants, as well as the state of the utility's infrastructure and the need for improvements.

309. PREPA's Business Plan proposes to amend the 1974 Agreement to phase out of the Consulting Engineer's role.²²⁶ At the evidentiary hearing, Ms. Donahue and Dr. Quintana clarified that the intent was not to eliminate the role, but to redefine it and find a new Consulting Engineer.

310. PREPA and its bondholders should not eliminate the role of Consulting Engineer. They should, however, find a new entity, because the prior firm failed in multiple ways to inform the PREPA Board and the public about the deterioration of PREPA's finances and of its physical system. Despite the failures of the prior Consulting Engineer, the concept of an independent entity providing analysis to PREPA, bondholders, the Commission and the public is sound and essential. The PREPA Board needs an independent, expert voice, one with a professional obligation to examine PREPA from top to bottom, and to be truthful and candid about what it observes, to opine on the state of PREPA's physical infrastructure and to recommend revenue increases when necessary. All the topics and analyses topics covered by the prior Consulting Engineer should be addressed by the new one.²²⁷

²²⁵ 1974 Trust Agreement, § 706.

²²⁶ See Ex. 3.02 at 65.

²²⁷ The Table of Contents to the 40th Consulting Engineers Report (2013) indicates detailed information provided regarding the following aspects of PREPA's operations: Production Plants, Environment, Co-generators, Transmission and Distribution Systems, Technological Systems, General Facilities, Puerto Rico Economy, Econometric Projections, Generation Forecast, Demand-Side Management and Energy Conservation Programs, Capacity Planning, Alternative Energy Sources, Fuel Mix, Energy Sales Forecasts, Rate Schedules, Subsidies and Credits, Selected Rates, Cost of Service, Annual Budget, Revenues, Expenses, O&M Expenses, Net Revenues, Debt Service Coverage, Depreciation, Accounts Receivable, Contributions to the Commonwealth, Financing, Capital Improvement Program, Retirement Funding, Inventories, Insurance, Funding Recommendations, Human Capital, Legal Affairs, PREPA Subsidiaries.



Directive

As required by the Trust Indenture, PREPA shall retain a Consulting Engineer, different from the one previously engaged. Before recruiting the Consulting Engineer, PREPA shall submit to the Commission a description of the duties and the required qualifications. The Commission may comment on such description, but PREPA shall have full discretion to choose the Consulting Engineer. PREPA shall provide the Commission any information it requires about the functions, activities and reports of the Consulting Engineer.²²⁸

²²⁸ In its brief, PREPA "opposes this recommendation being part of this rate review, which involves a Trust Agreement matter, and which is inappropriate based on the record and law and unnecessary here." The Commission is imposing this requirement independent of whether it remains in the Trust Agreement. This requirement is not merely a "Trust Agreement" matter; it is a matter of protecting consumers from excess costs, poor financial and operational decision making, deteriorating infrastructure and the myriad of other problems discussed throughout this order. For PREPA's revenue requirement to be just and reasonable, there must be an independent entity reviewing and reporting on its operations, regularly and transparently. The Commission will not approve a rate increase without assuring itself that the money will be spent wisely. That is the benefit of a Consulting Engineer that does its job properly.



PART THREE: Revenue Allocation and Rate Design for FY2017

311. As explained in Part Two, the FY2017 revenue requirement represents the total dollars PREPA must receive during FY2017 to pay all its expenses, fund the approved capital expenditures, pay the principal and interest on debt due during the year and have an appropriate debt service coverage ratio. Having determined the revenue requirement, the Commission now needs to set rates, so that PREPA's customers pay the dollars that produce the revenue requirement.

312. Setting the rates involves two major steps: Allocating responsibility for PREPA's revenue requirement among the major customer classes, then designing the rates to be paid by the individual customers within each class. We address those two subjects in Part Three-I (revenue allocation) and Part Three-II (rate design). Part Three-III discusses riders—special mechanisms that recover specific costs outside of base rates. One rider is for "subsidies," the subject we address separately in Part Three-IV. Finally, Part Three-V addresses rate design issues specific to net-metering for customers who own renewable energy facilities.

I. Revenue allocation

A. Classes, tariffs and tariff codes

313. Revenue allocation divides the responsibility for a utility's revenue requirement among the classes of customers. The first step in revenue allocation, therefore, is to divide customers into classes. PREPA, like many utilities, uses the following broad customer classes:

- Residential
- Commercial
- Industrial
- Agriculture
- Public Lighting
- Other Public Authorities (which PREPA sometimes places into the commercial class for presentation purposes).

Within each of these broad classes, customers are assigned to different tariffs, depending on the customers' cost-causing characteristics. PREPA Exhibit 4.0 lists 17 tariffs:

1. GRS (general residential)
2. RH3 (municipal public housing)
3. LRS (low-income residential)
4. RFR (Public Housing Administration tenants)
5. GSS (secondary general service)



6. GSP (primary general service)
7. TOU-P (time-of-use primary)
8. GST (transmission general service)
9. LIS (large industrial)
10. TOU-T (time-of-use transmission)
11. SBS (standby service)
12. GAS (general agriculture service)
13. PPBB (independent power producer)
14. PLG (public lighting)
15. USSL (some unmetered loads)²²⁹
16. CATV (cable operator equipment)
17. LP-13 (sports-field lighting)

Most of these tariffs serve only one customer class. The tariffs GSS, GSP, GST and TOU-P all serve customers in multiple classes: commercial, industrial and/or public classes.

314. PREPA (like many utilities) then divides most tariffs into several "tariff codes," reflecting such distinctions as:

1. the size (measured in various ways) of customers on the RH3, RFR, LRS, TOU and LIS tariffs.
2. whether GRS customers are subject to the discount for students, the handicapped and the elderly.
3. whether the GSS, GSP, GST and TOU-P customers are commercial, industrial and/or public authorities.
4. whether the customer uses net metering or storage air conditioning.
5. whether the customer takes standby service, or has a rate discount for new or expanded loads.
6. the end-uses served by public lighting and unmetered loads.

PREPA lists 71 tariff codes, of which 47 have customers. (Schedule G-1, tab Input-1) Overall, then, PREPA has five or six classes, 17 tariffs, and 47 active tariff codes.

²²⁹ Other unmetered loads, mostly for light, are sometimes treated as part of public lighting as sometimes as separate tariffs.



B. PREPA's cost-of-service study

1. Purpose and organization of a cost-of-service study

315. A central principle of just and reasonable ratemaking, economic efficiency and equity is that costs should be borne by those who cause them. Once a commission determines customer classes, tariffs and tariff codes, the next step is to determine how customers in those various categories cause the utility to incur costs. The starting point for determining cost causation is a cost-of-service-study ("COSS").²³⁰

316. In determining cost causation, analysts consider the following factors, among others:

1. each class's contribution to the current need for the equipment and services;
2. each class's contribution to the current usage of the equipment or of the services that require the expenditure;
3. each class's contribution to the rationale for undertaking a cost; and
4. how much each class currently uses the service that created a cost in the past.

Using accounting data, load data and other inputs, a COSS estimates cost responsibility by following three steps: functionalization, classification and factor allocation.

1. **Functionalization** places each cost within one of the following areas: generation, transmission, distribution, customer service or overhead (this last sometimes called "administrative and general"). These general functions can be subdivided into sub-functions and accounts.
2. **Classification** focuses on the forces that drive the utility's need to incur costs. For the costs associated with each function, sub-function or account, classification determines whether those costs are driven by one or more of three categories of factors: demand, energy and the number of customers. Fuel, for example, is classified as energy-related because the need for fuel is driven by the consumption of energy. Generation and transmission are classified as demand-related when these facilities are built for purposes of serving demand (i.e., the combination of all customers' need for power at a

²³⁰ A cost of service study is often called an "embedded cost of service study" because it is based on costs incurred in the past (embedded costs), which costs are necessary to provide service in the present. A generating plant provides service today but its costs were incurred in the past. An embedded cost study thus differs from a marginal cost study, which focuses on costs to be incurred in the future. We will discuss marginal costs in Part Three-II.A below.



specific point in time). Generation and transmission can also be classified as energy-related if their purpose is to create fuel diversity—for example, to reduce customer exposure to volatility in fuel prices or fuel availability. Meters are usually classified as customer-related, because it is the existence of a customer (rather than the quantity of demand or consumption) that drives the need for a meter.

3. **Factor allocation** allocates each category's costs to the various customer classes. Costs that are classified as demand-related (such as generation costs) might be allocated among customer classes based on each class's proportional contribution to the system's annual peak.²³¹

317. While a cost-of-service study may be the starting point for allocating revenue responsibility, it is not necessarily the ending point. As Commission consultant Chernick explained:

A commission need not approve, or even review, a cost-of-service study in any particular rate proceeding. Some regulators review COSSs in every rate case, others review a COSS once a decade. Some regulators select a particular COSS methodology to guide their decisions about rates; others consider several methodologies, without explicitly accepting any one method.²³²

A COSS thus is a guide, not a constraint:

Even the best cost-of-service study reflects many judgments, assumptions and inputs; other reasonable judgments, assumptions and inputs would result in different cost allocations. In addition, concepts of equity extend beyond the cost-of-service study's assignment of responsibility for causing costs or using the services provided by those costs, to include relative ability to pay, gradualism in rate changes, and other policy considerations.²³³

318. The COSS prepared by PREPA's consultants²³⁴ followed the traditional steps of functionalization, classification and allocation. They actually performed three separate

²³¹ Alternatives to allocating based on contribution to annual peak include allocating based on the average of a class's 12 monthly coincident peaks or allocating based on a class's non-coincident peak. A class's coincident peak is its contribution to demand at the point in time that coincides with the system peak. A class's non-coincident peak is the demand at the time of that class's peak demand, regardless of whether it coincides with the system peak.

²³² Chernick Report at 36.

²³³ *Id.*

²³⁴ PREPA's COSS appears in PREPA Ex. 8.0. Its authors, Mr. Zarumha and Mr. Granovsky, explain that their COSS "is used in the development of rates" that they propose in PREPA Ex. 4.0.



studies: one based on FY2017 on the assumption that the debt restructuring was completed, one based on FY2017 on the assumption that the debt restructuring was not completed, and one based on FY2014.

2. Critique of the COSS

319. Mr. Chernick found multiple problems with PREPA's COSS. A partial summary follows.

a. Problems with load data

320. The amount of generation, transmission and distribution capacity required to serve customers is determined in large part by the aggregate loads on each component of the system. As Mr. Chernick explained, depending on the system and the type of equipment, the loads that drive the need for new capacity may be a few hours a year, a few hours a month, the highest fifty or hundred hours in the year, the average load in several contiguous high-load hours, or total hourly load.²³⁵ To determine how the loads of various customer classes contribute to the need for capacity, utilities typically conduct a load research program. The research develops load profiles for different customer groups.²³⁶

321. Because PREPA does not have a continuing load-research program, it had to develop load shapes through other means. Mr. Chernick found that PREPA's efforts had the following problems: (1) Data used to develop load shapes came from different years; (2) in certain customer classes, PREPA used the same load shape for both large and small customers, when their load shapes would likely differ; (3) some load shapes were "simulated" (PREPA's words) rather than actually observed; and (4) much of the information essential to reviewing the reasonableness of the load shapes was not available.²³⁷

b. Problems with demand allocators

322. PREPA did not have information with which to determine various customer classes' contribution to system peak load. PREPA therefore used allocators based on estimates of class non-coincident peak load. Those estimates reflected different peak hours, days and months for different tariff codes. Also, PREPA did not have non-coincident peak data for each customer class for any recent year, so it combined data on load shapes from as early as FY2009 and as late as FY 2014, depending on the tariff code.

²³⁵ Chernick Report at 39.

²³⁶ A load profile for a customer class displays that class's load's shape—how the class's demand varies over the hours in a day, week, season or year. Load shape is crucial information because generation must be sufficient to meet load, whatever its shape, at all hours of the year.

²³⁷ Chernick Report at 41-43.



323. Even if PREPA had reliable data on non-coincident peak load, there would still be major problems with using non-coincident peak load as an allocator. As Mr. Chernick explained:

PREPA does not have one generation system for residential customers, another for street lights, another for secondary commercial customers, and so on. The vast majority of transmission lines serve a wide mix of classes. Most distribution substations and feeders also serve a mix of classes. In the real world, customers are mixed together, sharing distribution, transmission and generation resources. The loads that matter are at the times of high loads [on] each line, each transformer, and the generation system, not at the times of the maximum load of a class or tariff code.²³⁸

The result of these problems is, as Mr. Chernick explained, that PREPA's estimates of class demand allocators do not represent the load characteristics that drive PREPA's costs.²³⁹

c. Problems with functionalization and classification decisions

324. In the area of functionalization and classification, the COSS had at least five problems:

1. PREPA classified all fixed costs of generation as demand-related. This decision, Mr. Chernick explained, ignores the fact that PREPA incurred some generation costs not to meet demand but to diversify fuel sources, improve the efficiency of fuel use, or reduce emissions of pollutants. Such generation should have been classified to energy. Similarly, PREPA classified the fixed portion of its power purchase contracts to demand. But those contracts also served an energy function, because their costs were driven, at least in part, by a desire to diversify energy sources, access less expensive fuels, and use less fuel per kilowatt-hour generated.
2. PREPA functionalized all transmission to the transmission category, but some transmission lines should have been classified to generation, because they serve a generation function by connecting generators to the system's network. And transmission that is functionalized as generation then should be classified [as between demand and energy], consistently with how the associated generation was classified.
3. PREPA's sub-classification of distribution, between primary and secondary distribution, was not based on real data because the necessary data were not

²³⁸ *Id.* at 44.

²³⁹ *Id.* at 28.



available centrally. The ratio PREPA used (59.5% for primary and 40.5% for secondary) was flawed because those numbers represented the fraction of load served at each voltage rather than cost of the equipment operating at each voltage.

4. PREPA allocated customer-related costs based on a weighted number of customers. The weightings were based on the relative cost of the different meters used by each tariff group. Mr. Chernick explained that there is no necessary relationship between the relative cost of meters and the ratio of the other customer-related costs that various tariff groups cause:

[T]here is no reason to expect the variation in the average cost of a meter to be a good measure of the difference among classes in other average customer costs. For example, the variation in the average cost of a service drop among classes depends on a number of factors that have nothing to do with the cost of meters—the distance from the distribution line to the customer, underground versus overhead service, the number of customers sharing a service drop [...]²⁴⁰

Furthermore, PREPA was not able to provide the derivation of the relative meter costs.

5. PREPA functionalized and classified overhead costs based on a single labor factor, even though many overhead costs are unrelated to labor. For example, insurance and finance are related to physical plant; the Energy Commission expense is related to customer payments for electricity whose prices are regulated by the Commission.

3. The Commission's use of the COSS

325. The Commission is fully committed to setting rates that are guided by a COSS in which we have confidence. But the gaps in data and the numerous subjective and debatable judgments in PREPA's COSS, leave us without confidence that the filed COSS describes cost causation accurately. For the Commission to express confidence in PREPA's COSS would imply it would accept a future COSS with the same flaws. That is not the signal the Commission wishes to send. Nor is it possible to "fix" PREPA's COSS in the short time the statutory deadline in this proceeding makes available. Rather, we will conduct a series of technical conferences, within a separate rate design proceeding, to sort through the problems and reach the right balance between perfection and irresponsibility.

²⁴⁰ *Id.* at 58.



326. In the meantime, we must set rates, so that PREPA will have the revenues it needs to operate, the investment community will know that PREPA will be able to pay its bondholders, and so the public will have more certainty about its role in PREPA's transformation. And so we must set rates, even in light of the insufficiency of PREPA's COSS.

327. However, we cannot and do not ignore PREPA's COSS. The document is in the record, was presented by professional witnesses, was closely analyzed by Mr. Chernick and intervenors and was vetted through two days of detailed questioning by the Commission. Under these circumstances, we view PREPA's COSS as a guide against which we can test other options.

328. Some may view our candor about the COSS as a defect, and any deviation from perfection as evidence of unlawfulness. But we remind all that this Commission must operate in the real world. The facts are what they are. PREPA is in a transition. One aspect of that transition is that PREPA does not have, or, if it has, it has not produced during this brief 180-day proceeding, all the information necessary to produce a fully trustworthy COSS. The Commission cannot change that fact, any more that it cannot change the fact that PREPA's current rates are insufficient. The reality of transition means that we must view today's rate decision as itself transitional. As PREPA gathers more data and improves its cost causation analyses, we will have a COSS that more surely guides our rate decisions. Until then we must work with what we have.

329. The alternative would be to view the flawed COSS as a constraint on our rate decision. So constrained, we would have to set rates that were admittedly wrong, then correct them later—a practice that would confuse customers, inject unpredictability and reduce confidence in our decisions. The far better decision is the one Mr. Chernick recommends, and the one everyone can understand, as discussed next.

C. The Revenue allocation results

330. A disciplined, credible cost-of-service study should be an input to revenue allocation, but it is only one consideration. Commissions typically vary from the COSS based on such considerations as gradualism, inter-class equity and concerns about retaining major loads. Indeed, PREPA's proposed revenue allocation itself deviates markedly from its COSS. As presented in PREPA's Exhibit 4.0, the percent increase in base rates for each revenue class called for by PREPA's COSS for most classes differs from the percent increase proposed by PREPA for the same class.²⁴¹ The numbers are re-displayed here:

<u>Class</u>	<u>COSS</u>	<u>Proposal</u>
All classes	26.5%	26.5%
Residential	60.4%	28.6%

²⁴¹ PREPA's Ex. 4.0 at 26.



Commercial	6.1%	22.1%
Industrial	1.4%	26.2%
Agriculture	92.9%	22.2%
Public lighting	76.5%	76.5%

331. Given the flaws in PREPA's COSS, the Commission needed another basis for allocating revenue responsibility. Mr. Chernick, with forty years' experience in this field, explained that under such circumstances commissions might allocate responsibility for revenue increases using (a) an equal cents/kWh allocator (as the Commission did for the Transition Charge and for the Provisional Rate) or (b) an equal percentage increase for all classes.²⁴²

332. The Commission adopts Mr. Chernick's recommendation of allocating revenue increase on an equal cent-per-kWh basis with one exception. This approach, besides being straightforward, encourages conservation, and maintains current incentives to invest in renewable energy.

333. Exception: Prior to computing the general cent-per-kWh increase, PREPA shall increase the PPBB revenue requirement by the average increase in the system revenue requirement, excluding the fuel, purchased-power and Transition Charge. This separate treatment ensures that the entities covered by this tariff, AES and EcoEléctrica, pay an appropriate amount. The tariff is for back-up service to these two large fossil power producers. As presently written, it recovers most of its revenue through demand charges, not through per-kWh charges. If we allocate the entire revenue increase to per-kWh charges these two customers avoid nearly the entire increase. Therefore, this tariff class's appropriate share of the revenue increase will be added to the existing charge for back-up service.

334. The remainder of the allowed revenue increase (*i.e.*, the portion not recovered through the PPBB revenue requirement), shall be divided by projected non-PPBB FY2017 sales to yield a general cent-per-kWh revenue increase rate. The revenue allocation for each tariff shall be increased by the revenue increase rate times the projected sales for that tariff.

Directive

- 1. PREPA shall allocate the allowed revenue increase in an equal cent-per-kWh basis with one exception, as discussed below.***
- 2. Prior to computing the general cent-per-kWh increase referenced above, PREPA shall increase the PPBB revenue requirement by the average increase in the system revenue requirement, excluding the fuel, purchased-power and Transition Charge.***

²⁴² Chernick Report at 68.



3. *The remainder of the allowed revenue increase shall be divided by projected non-PPBB FY2017 sales to yield a general cent-per-kWh revenue increase rate.*
4. *The revenue allocation for each tariff shall be increased by the revenue increase rate times the projected sales for that tariff.*

II. Rate Design

335. Having allocated revenue (and the revenue increase) to each class, the Commission must determine how that revenue will be collected from the customers in each class. That is the purpose of rate design. In this section, we address the rate design issues that were disputed among the participants or where criticisms were offered by our consultants. Before addressing individual rate design issues, we discuss the role in rate design played by marginal cost.

A. The role of marginal cost

336. Rate design is built on specific components. The most common components are the hourly energy charge (in cents/kWh) and the monthly customer charge (in fixed dollars). Some rate designs for large customers also have monthly demand charges (in \$/kW). Rate designs assign revenue responsibility to individual customers using "billing determinants." Billing determinants are the denominators in the fractions that produce rates (the numerator being the dollars that need to be recovered). Typical billing determinants track the components just mentioned: kWhs (for the portion of the rate structure that assigns revenue responsibility based on consumption), customer months (for the fixed customer charge portion of the rate structure) and monthly maximum demand in kW (for demand charges).

337. In choosing among these options, regulators seek to ensure fairness among customers within each tariff class, while provide understandable, stable, and efficient price signals. The focus on efficiency leads to an emphasis on marginal cost.

338. Marginal cost is the increase in a company's total cost caused by making one more unit, whether that unit is one more kWh of energy, one more kW of capacity, or one more customer served. A principle of microeconomics is that prices based on marginal cost are more economically efficient than prices that are not. That is, the closer a price is to marginal cost, the more efficient will be a producer's decision to produce and a consumer's decision to consume. The more efficient those production and consumption decisions are, the more resources are available to the economy (and thus the citizenry) as a whole.

339. Due to the importance of marginal costs, utilities typically perform marginal cost studies. As Mr. Chernick explained, these studies estimate the specific marginal costs that are relevant to ratemaking, such as the cost of:²⁴³

²⁴³ *Id.* at 70-71.



1. serving one more customer, for each of the various types of customers served;
2. generating or purchasing one more kWh of energy at various times of the day, plus the line losses associated with delivering that energy to the customer;
3. providing enough generating capacity to serve another unit of customer load (e.g., a kilowatt at the coincident peak hour(s)) plus the line losses associated with serving that load in that hour;
4. providing enough transmission capacity to serve another kilowatt of the customer loads driving transmission requirements;
5. providing enough primary distribution capacity to serve another kilowatt of the customer loads driving primary distribution requirements; and
6. providing enough secondary distribution capacity to serve another kilowatt of the customer loads driving secondary distribution requirements.

340. PREPA Exhibit 9.0 is PREPA's marginal cost study. PREPA used the results to guide its proposed rate structures, in the following areas relevant to this Order: setting energy rates²⁴⁴, setting customer charges²⁴⁵, justifying its proposed load-retention rider²⁴⁶, and estimating whether net-metered customers are "subsidized."²⁴⁷

341. After analyzing PREPA's marginal cost study, Mr. Chernick identified serious deficiencies, including:²⁴⁸

1. dramatically under-estimating fuel prices, and hence marginal energy costs;
2. ignoring the costs of renewable resources required to meet the renewable portfolio standard;
3. assuming that no load-related generation investments are avoidable for 20 years (thus discounting PREPA's proposals to add hundreds of megawatts of capacity starting in 2020);

²⁴⁴ PREPA Ex. 4.0 at 34, 41.

²⁴⁵ PREPA Ex. 15.0 at 67.

²⁴⁶ PREPA Ex. 4.0 at 36.

²⁴⁷ *Id.* at 34-35.

²⁴⁸ Chernick Report at 71-72.



4. assuming that no transmission investments are avoidable for more than 20 years (thus discounting PREPA's plans to add large amounts of load-related transmission in the next three years);
5. excluding large amounts of load-related distribution investments;
6. assuming that additional distribution plant will not increase operations and maintenance cost; and
7. failing to distinguish between average and marginal losses.

342. At the Technical Hearing we had a useful dialogue on these points and others. The Commission recognizes that PREPA's consultants hold opinions that differ from Mr. Chernick's. Most of these differences we can address in the upcoming rate design proceeding. The ones that affect specific rates at issue in this case we discuss next, in the following categories: residential rates, commercial and industrial rates, lighting and unmetered rates, connection fees, and unbundling.

B. Residential rates

1. Customer charge

343. The customer charge is imposed on every customer every month, regardless of the quantity of consumption. Its purpose is to recover the fixed costs that are necessary to connect and maintain that customer. Mr. Chernick advised that:

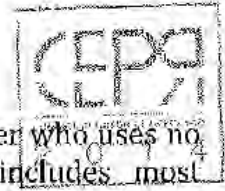
[T]he fixed charge should reflect the cost of having that household (in the case of the residential class) as a customer, even if the customer used zero energy. [...] The fixed charge should approximate the cost of adding a customer without adding load, or the savings when a customer notifies PREPA that service is no longer required. [...] The fixed customer charge should reflect the minimum costs of serving the smallest customers in the class.²⁴⁹

The costs recovered through a customer charge typically include the service drop, meter, meter maintenance, meter reading, billing, and customer service.

344. PREPA proposes to raise the fixed charge for the GRS (general residential service) class from the current \$3/month to \$8/month, while leaving the RH3 and LRS customer (low-income customer) charges at \$2/month.²⁵⁰ PREPA's consultants testified that

²⁴⁹ Chernick Report at 101.

²⁵⁰ The RFR charges for fixed blocks of energy (based on number of rooms in dwelling) are set by Act 69-2009, as amended by Act 22-2016.



their marginal cost study showed that the full fixed costs of serving a customer who uses no energy is \$14.18/month for single-phase customers (a category that includes most residential customers and all small customers). The \$14.18/month amount comprises carrying charges of \$4.60 for the meter, \$2.94 for the service drop, and \$5.25 for a share of a transformer, plus \$1.38 for meter reading and billing.²⁵¹

345. Mr. Chernick found this amount to be overstated, for at least three reasons:²⁵²

1. PREPA used a nominal carrying charge of 17.06%, rather than a real carrying charge of 15.26%. Since PREPA will be escalating this estimate over time, the real carrying charge is appropriate here. Correcting that error, holding all else the same, reduces the marginal customer charge to \$12.83/month.
2. PREPA included in the charge a \$370 transformer. Transformer costs are driven by the size and number of transformers, both of which are determined largely by the area and load to be served, rather than the number of customers. Adding a customer without adding load will not normally require a new transformer. Indeed, PREPA's cost-of-service study treats transformers as entirely load-related rather than customer-related; the marginal cost study should do the same. Correcting this error, all else the same, reduces the customer cost to \$8.13/month at the real rate.
3. PREPA included in the charge a \$207 service drop. Small customers in apartment buildings will usually share a service drop. Assuming that an average of just five small residential customers share a larger service drop sized for general-service customers would reduce the marginal customer cost to \$6.69/month to \$6.13/month at the real rate.

346. Mr. Chernick then performed a recalculation showing that the incremental cost to connect, bill, and service a new small customer would be about \$6/month. But he also calculated that the marginal cost of maintaining an existing customer location might be only \$2 or \$3. He recommended a customer charge of \$4 per month.²⁵³

Directive

The fixed charge for non-subsidized GRS customers shall be raised to \$4.00, which is consistent with Mr. Chernick's recommendations. No other fixed charge shall be changed. The remainder of the revenue allocated to the GRS customers will

²⁵¹ PREPA Ex. 15.0 at 6.

²⁵² Chernick Report at 101-03.

²⁵³ *Id.* at 103.



therefore be recovered through the consumption (per kWh) charge. By making the decision to consume electricity more expensive, this approach will encourage more energy conservation and more renewable energy.

347. In finding that a \$4.00 customer charge is justified by marginal cost considerations (as evidenced by Mr. Chernick's analysis), we have considered PREPA's consultants' concern that placing costs on the kWh charge rather than on the fixed customer charge will leave PREPA at risk of not recovering its fixed costs. PREPA has provided no evidence about the magnitude of this risk. The Commission must make decisions based on evidence, not fears. However, the Commission will examine this question closely in the upcoming proceeding on rate design. Furthermore, PREPA can bring forward evidence of revenue loss in the reconciliation process described in Part Four below.

2. Energy charge

348. Energy charges are usage charges, imposed per kilowatt-hour of consumption. Currently, PREPA charges GRS customers 4.35 cents/kWh for the first 425 kWh of monthly consumption and 4.97 cents/kWh for additional usage. This type of differential, known as "inclining block" rates, is common in other jurisdictions. It is used by commissions to reduce costs for small users and to encourage energy conservation.

349. PREPA proposes to remove that differential. Its consultants argued that the energy charge for each block exceeds the bundled marginal cost.²⁵⁴ Mr. Chernick responded that the PREPA marginal energy cost study was flawed, as discussed above. Among other concerns he raised, PREPA's study had estimates of marginal energy costs that were lower than PREPA's self-reported FY2016 production costs. The PREPA estimates also reflected fuel costs much lower than those estimated by Drs. Fisher and Horowitz. Moreover, PREPA's estimates also did not account for the fact that certain plants would be operating all month; with the boiler already hot, the incremental fuel costs necessary to raise those plants' production would be lower than normal. Finally, PREPA used a simple average of the hourly marginal costs, rather than a weighted average of hourly prices reflecting the higher marginal costs in higher-load hours. Mr. Chernick also pointed out that the GRS customers using over 425 kWh monthly have a lower load factor (fewer kWh per kW of NCP peak) than the smaller GRS customers, and therefore may be more expensive to serve per kWh. He added that eliminating the inclining-block rate would "slightly reduce conservation incentives for the larger customers, who probably have more opportunities for conservation."²⁵⁵

Directive

²⁵⁴ PREPA Rx. 4 at 41.

²⁵⁵ Chernick Report at 72.



The Commission accepts Mr. Chernick's reasoning and his conclusion. PREPA shall maintain the existing cents/kWh differential in the GRS inclining block rate.

3. Fuel discount

350. The Legislature has mandated a fuel discount. The discount rises with the price of oil, up to \$30/barrel. The discount is applied to the first 400 kWh monthly usage of eligible residential customers.²⁵⁶ PREPA has applied this discount to customers in the LRS and RH3 tariffs and the GRS 111 tariff code (which covers the handicapped, the elderly and college students). PREPA currently uses a complicated formula that gives higher discounts per kWh to the smallest customers. PREPA also uses a complicated declining discount, starting at 90% for the smallest customers, which then drops steeply at 101, 201 and 301 kWh/month. The entire discount abruptly disappears at 426 kWh/month, as explained in the Chernick Report at Figure 7 (at 104-105).

351. In this proceeding, PREPA proposes to simplify the discount in various ways. The Commission agrees with the need to simplify.

Directive

PREPA shall restructure the fuel discount for customers on the LRS, RH3 and GRS 111 tariffs, simplified as proposed in PREPA's filing, but modified so that the discount diminishes gradually over 425 kWh, rather than abruptly. The fuel discount shall be phased out from 425 kWh to 500 kWh.

4. Direct debit credit

352. PREPA provides a 10% discount from base rate (i.e., excluding fuel and purchased power), for residential customers who pay their bills by direct debit. PREPA has not provided data on the rationale for the level of the discount or the savings that result. At the technical hearing we learned that the number of customers using this payment method is small.²⁵⁷

353. PREPA says that direct-debit billing increases the probability that PREPA receives its funds on time and in full—if there are sufficient funds in the billed account. PREPA also sees benefits in reduced processing costs, and improved cash flow due to increased predictability.

²⁵⁶ See Puerto Rico Electric Power Authority Act sec. 22(c), as amended by Act 133-2016.

²⁵⁷ CEPR-PC-04-27 at 13. Commission's Sixth Request of Information (July 29, 2016).



354. Mr. Chernick pointed out that whatever the benefits to PREPA of prompt, reliable and efficient payment, those benefits would be the same for all components of the bill, not just the base charge. Since the direct debit credit has been about 2% of the total bill, he recommended resetting the credit to that level but applying it to the entire bill. That level, he said was consistent with discounts offered by other utilities.²⁵⁸

Directives

1. *The direct-debit discount shall remain as currently established, i.e., as a 10% discount on base rates, excluding all riders.*
2. *In the rate design proceeding, PREPA shall present a business case that describes the benefits and costs of this discount.*
3. *PREPA shall add the description of the direct debit discount to its tariff book.*

C. Commercial and industrial rates

1. Demand charge

355. A demand charge applies a rate in \$/kW to a customer's maximum rate of consumption in any 15-minute period in the month, regardless of whether the customer's maximum load coincides with period of high load on the system. PREPA proposes major increases in the demand charges for the non-residential classes that current have those charges (tariffs GSP, GST, TOU-P, TOU-T and LIS). The proposed increases are more than twice the increases in the energy charges, and for GSP, over twelve times.²⁵⁹

356. Mr. Chernick disagreed with this proposal. Here are three reasons he gave, among others, for why demand charges, as tools for taming customer demand and reducing system costs, are ineffective:

1. "Even a single [customer] failure to control load results in the same demand charge as if the same demand had been reached in every day or every hour. This attribute of demand charges erodes the incentive to even try to avoid the charge, since weeks of careful effort can be swept away if the electric water and refrigerator happen to go on simultaneously. Once a customer is aware of having hit a high billing demand for the month, the demand charge offers no

²⁵⁸ Chernick Report at 105-06.

²⁵⁹ See, e.g., PREPA Ex. 4.0 at 48.



reward for controlling load any time that the customers load is less than that prior demand."²⁶⁰

CEMEX's testimony (at 8-9) noted that demand charges penalize arbitrarily when operating sporadically due to low demand for cement—even if the cement plant operates at nearly 100% capacity factor for the days it is used.

2. Customers reach their maximum monthly loads at a wide variety of times during the month, while capacity costs for the system as a whole are driven by coincident loads that occur at the time of maximum system demand on the relevant piece of equipment. So penalizing an individual customer for its non-coincident demand does not help avoid system costs.²⁶¹
3. Customers can avoid demand charges merely by redistributing load. And if a customer shifts its load from its own peak to the system peak for a particular piece of equipment, the result is to increase system costs.²⁶²

357. Intervenor witnesses asserted that demand charges reduce customer incentive to install distributed generation.²⁶³

358. PREPA also proposed to eliminate certain ratchets and contract demands.²⁶⁴ Mr. Chernick agreed with that result because (among other reasons) ratchets make it more difficult for customers to control their bills, while diluting incentives to reduce usage in ways that would reduce PREPA's costs.²⁶⁵

Directives

1. ***PREPA shall not increase demand charges for any tariff other than PPBB (as described herein). The revenue increases assigned in this proceeding to***

²⁶⁰ Chernick Report at 97.

²⁶¹ *Id.* at 97-98.

²⁶² *Id.* at 98.

²⁶³ See, e.g., Providi Direct at 9, 15-16; Kunkel and Sanzillo Direct at 3, 32-33; Gonzalez Direct at 8; Masses y Artze Direct at 9.

²⁶⁴ CEPR-PC-04-31. Commission's Sixth Request of Information (July 29, 2016). The ratchet took the form of determining billing demand each month as the highest of (a) the current month's maximum 15-minute demand, (b) 60% of the customers maximum demand in the preceding year, and (c) 60% of a previously established contract demand level. The effect is a ratchet because one year's demand creates a floor for the charge in the next year; *i.e.*, billing demand cannot ever decline.

²⁶⁵ Chernick Report at 107.



the other tariffs with demand charges shall be recovered through PREPA's proposed customer charges and through increases in the per-kWh rates.

2. *PREPA shall increase each component of the PPBB tariff by an equal percentage, computed to recover the revenue increase allocated to this class consistent with the Commission's determination above.*
3. *PREPA shall eliminate the ratchets and contract demands. They are unnecessarily complex and lacking in cost justification. With these changes, the demand-charge portion of the customer's bill shall be determined solely by the current month's 15-minute maximum demand.*

2. Time-of-use rates

359. PREPA has two tariffs for non-residential time-of-use rates: time-of-use primary (TOU-P) and time-of-use transmission (TOU-T). For the customers using these tariffs, PREPA proposes to (a) allocate most of the rate increase to the demand charges, (b) eliminate the distinctions between on-peak and off-peak demands, (c) slightly reduce the energy charges, and (d) close the rates to new customers. For the two customers currently on the TOU-T rate with standby service (SBS), PREPA proposes to terminate their TOU rates and move them onto the non-TOU GST tariff.

360. Mr. Chernick advised against these changes. CEMEX also expressed concern, recounting its efforts to switch to a time-of-use rate, which efforts met with PREPA's rejection. We agree with CEMEX's argument that keeping the TOU rates open will assist in helping customers to manage their demand and consumption in a way that lends more stability to PREPA's revenues, while supporting the competitiveness and economic development of industrial consumers.

Directive

This labor-intensive, deadline-driven rate case is a suboptimal time to make major changes in rate design, especially where the effects of those changes on various customers is not well-understood. PREPA shall retain Tariffs TOU-P and TOU-T without change in availability, and keep them open for new customers. PREPA shall eliminate the ratchets and contract charges from these tariffs, and increase the on- and off-peak energy charges in each tariff uniformly to recover the allocated revenue increase. We will address the issue of time-of-use rates in the upcoming rate design proceeding.

3. Economic development rate

361. PREPA proposes to offer price discounts, subject to Commission review, through an economic development rider. The order would allow PREPA to provide a negotiated discount for a period of three to five years in exchange for the customer creating new jobs on



the Island. The discount level would be based on the level of employment created and the cost to serve the load.

Directive

PREPA shall not initiate the economic development rate. The Commission does not currently have expertise in job development. The proposal does not address, among other things, the types of jobs or their longevity. Nor does the proposal address the Commission's ability to enforce the job creation requirement against a customer that fails to achieve that requirement. This Commission cares deeply about economic development, and will do all it can within its authority to stimulate it. But decisions of this importance to Puerto Rico's future must be supported by more than vaguely defined riders. We will discuss this option more deeply in the upcoming rate design proceeding.

4. Load-retention discounts

362. PREPA proposes a load-retention rider. The rider would be available for situations in which a discount is necessary to retain load that would otherwise be lost, provided the discounted rate generated revenues exceeding the incremental cost of serving the load. Such discounts can protect other customers from having to bear the fixed costs that would be left behind should the customer at issue cease to be a customer of PREPA. The discount would not be tied to job creation. Any discount negotiated by PREPA would be subject to Commission approval.

363. Mr. Chernick cautioned that the Commission should establish some guidelines to define the availability of load-retention discounts, so that they do not subsidize large customers at the expense of others, promote inefficient consumption, or deter the economic development of renewable energy.²⁶⁶ He also stressed that PREPA's estimates of marginal costs, which he asserts are understated, need to be improved before the Commission can have confidence that increased sales due to any discount will benefit other customers.²⁶⁷

Directives

- 1. PREPA shall institute a tariff offering load-retention discounts where necessary to retain load. The discounts shall be subject to Commission advance review, not produce rates below marginal cost, shall be no greater than necessary, shall not encourage wasteful consumption, and shall not pose an obstacle to the development of economical renewable energy.***

²⁶⁶ *Id.* at 109-10.

²⁶⁷ *Id.* at 110.



2. *Negotiations between PREPA and customers seeking this discount shall (a) be guided by the foregoing principles and any others the Commission establishes, and (b) include representatives of ICPO to the extent ICPO wishes to participate. This requirement is not intended to exclude others.*

5. **The PRASA preferential rate**

364. The Commission rejects PRASA's proposal. Act 50-2013 established a preferential rate under which PREPA would bill for all electric services provided to PRASA. For fiscal year 2017 forward, Act 50-2013 established a rate of 16 c/kWh. On March 28, 2014 PREPA and PRASA signed an agreement implementing the preferential rate, as well as other relevant terms and conditions. Section 9 of Act 50-2013 authorized PREPA to terminate the preferential rate if honoring such rate affected its ability to meet its financial obligations.²⁶⁸

365. On December 29, 2015, PREPA notified PRASA its intention of terminating the preferential rate. The preferential rate was effectively terminated on July 1, 2016.

366. PRASA argues that Act 50-2013 requires the Commission to approve a preferential rate.²⁶⁹ PRASA's argument is based on the fact that Act 50-2013 requires PREPA to approve a rate and, through Act 57-2014, the responsibility of approving rates was transferred to the Commission, and such transfer of powers included the obligation to implement a preferential rate for PRASA.

367. We hold that Act 50-2013 does not bind the Commission nor does it impose an obligation to adopt a preferential rate for two reasons. Firstly, Section 6.25(b) of Act 57-2014 provides that all of PREPA's rates would remain in effect until they are reviewed by the Commission. We interpret this sentence to mean that any prior arrangement with regards to PREPA's rates is subject to the Commission's review, and the Commission has the power and authority to review and approve, disapprove or modify all of PREPA's rates. Nothing in Act 57-2014 exempts PRASA's preferential rate from this authority nor does it suggest that the Commission's general discretion to approve rates is limited by Act 50-2013.

368. Secondly, PRASA argues that, since PREPA unlawfully terminated the preferential rate agreement, the Commission should interpret that such rate continues to be in effect.²⁷⁰ However, during legal arguments, PRASA's attorney stated that no court or administrative forum with competent jurisdiction had issued a ruling confirming PRASA's argument and deeming the preferential rate agreement to be in full force and effect.²⁷¹ As

²⁶⁸ Section 12 of the PREPA-PRASA agreement provides similar language.

²⁶⁹ See PRASA's Legal Brief at 5.

²⁷⁰ *Id.* at 3.

²⁷¹ See Technical Hearing Panel I Part 1 Recording, 17:30.



such, the legal reality before the Commission is that the preferential rate agreement is no longer in effect, and has been terminated since July 1, 2016. The Commission cannot presume, nor it is reasonable to do so, that the preferential rate agreement was unlawfully terminated. Such a controversy is not before this Commission's consideration. Accordingly, the Commission concludes that, as of the date of this Order, the preferential rate is not in effect.²⁷²

D. Lighting and unmetered rates

369. PREPA has proposed a large percentage rate increase for the Public Lighting and must unmetered tariff codes.²⁷³ Its consultants acknowledge that increasing the rates for the Public Lighting tariff will increase the magnitude of the subsidy charge. On the other hand, they say, mitigating the increase to Public Lighting would require larger increases to other customer classes.²⁷⁴

Directive

PREPA shall increase each component of the public lighting and unmetered tariffs by an equal percentage, computed to recover the revenue increase allocated to this class consistent with the Commission's determination above. We will revisit these issues in the rate-design proceeding.

E. Reconnection fees

370. Currently, secondary-voltage customers (480V and below) pay \$25 to reconnect service. PREPA says its reconnection cost is \$52. High-voltage customers (>480V) pay \$100 for a reconnection, while according to PREPA, reconnection costs approximately \$500.

²⁷² Similarly, during the Technical Hearings, PRASA's witness, Ms. Ramírez stated that PRASA's request was for the Commission to adopt some kind of rate treatment which would provide stability and predictability to PRASA's energy costs. Upon questions from the Commission's Staff, Ms. Ramírez stated that a fixed rate higher than 16 ¢/kWh which would be adjusted on a yearly basis would be acceptable to PRASA. Act 50-2013 provides for a fixed rate of 16 ¢/kWh and does not contemplate any adjustments to such rate on a periodical basis. We interpret this to mean that PRASA's request to this Commission is outside of the scope of Act 50-2013 and would even contradict some of the provisions of Act 50-2013. We view this as consistent with our conclusion that Act 50-2013 does not limit the Commission's discretion in approving rates applicable to PRASA.

²⁷³ PREPA's consultants stated that Tariff USSL is PREPA's tariff for unmetered services (PREPA Ex. 4.0 at 57). But the USSL tariff serves less than 1% of PREPA's unmetered load.

²⁷⁴ CEPR-PC-11-02(b) at 2. Commission's Thirteenth Request of Information (September 23, 2016).



PREPA proposed to raise the charge above cost to include a penalty feature, but then withdrew that proposal.²⁷⁵

Directive

PREPA shall raise each reconnection charge to its cost level: \$50 for secondary customers and \$500 for primary customers, adjusting its revenue requirement accordingly. This change aligns the charge with PREPA's estimates of actual cost. Any future changes in fee schedules require Commission approval.

F. Unbundling

371. PREPA's consultants proposed to "unbundle" rates, by separating PREPA's costs into generation, transmission and distribution. They claimed that "unbundling of tariffs is necessary in order to properly price the subcomponents of electric service used by each customer and avoid cross-subsidization."²⁷⁶

372. As we have stated regarding other PREPA proposals, this short, intensive rate proceeding is not an optimal time to consider this type of proposal. Furthermore, simply disaggregating generation, transmission and distribution does not provide customers with information truly relevant to their decisions. The consultants' "unbundling" proposal ignores the elementary distinction between cost unbundling (separate statement of costs) and service unbundling (allowing customers to purchase certain services without purchasing others, as in buying coffee without the coffee cup). In addition, the information relevant to both cost unbundling and service unbundling is not merely generation vs. transmission vs. distribution, but avoidable vs. unavoidable costs, sunk costs vs. future costs, and strandable costs vs. non-strandable costs. Therefore, the proposed "unbundled" rates are rejected.

373. The consultants' bid to unbundle is not an essential part of a rate case whose chief purpose, in the short time available, is to determine the revenues PREPA needs to operate. Developing and submitting this proposal was not a good use of PREPA's resources, which are ultimately paid for by the ratepayers. When the Commission determines the time is right to discuss unbundling, it will initiate an inquiry and determine what information PREPA must provide. Until then, PREPA should avoid treating its customers like a bank account from which it draws money each time its consultants wish to advance ideas. It is better to ask the Commission first whether such spending is worth the customers' money.

²⁷⁵ CEPR-RS-01-14 at 7. Commission's Fourth Request of Information [July 15, 2016].

²⁷⁶ PREPA Ex. 4 at 28.



III. Riders

374. For some components of the revenue requirement, regulators may use riders to recover the costs separately from all other costs. PREPA proposes special riders for fuel, purchased power, CILT and a group of costs and discounts collectively referred to as "subsidies."²⁷⁷ The Commission also has required PREPA to create a rider for energy efficiency expenditures, although we have not approved dollars for that rider. These matters are discussed next.

A. Fuel and purchased power

375. Currently, PREPA recovers all of its fuel costs and purchased-power costs through separate but similar Fuel Cost Adjustment ("FCA") and Purchased-Power Cost Adjustment ("PPCA") cost riders. It sets and reconciles the riders on a monthly basis.²⁷⁸ Most other costs are recovered through base rates. CILT and subsidies were recovered through the FCA and PPCA by means of a "gross-up" produced by dividing the adjustment revenues by 0.89 (which is equivalent to adding about 12.36% to fuel and purchased-power costs).

PREPA proposes to modify three aspects of the cost-recovery mechanisms:

1. Move the recovery of CILT and subsidies from the FCA and PPCA gross-up to separate riders, as required by statute.
2. Recover the projected fuel and purchased-power costs at the time of the rate-case filing through base rates, while recovering any difference between those base cost levels and updated projections through the riders.
3. Reconcile differences between actual and projected costs quarterly rather than monthly, unless a large difference justifies performing the reconciliation sooner.²⁷⁹

376. PREPA believes that including some fuel and purchased-power costs in base rates will reduce "the volatility of the FCA and PPCA factors," facilitate "some rate designs which PREPA may wish to implement in the future," and avoid "frivolous litigation".²⁸⁰ We are not convinced that PREPA's proposal will have these benefits. In absolute (cents-per-

²⁷⁷ The content and form of the subsidies rider is discussed separately in Part Three-IV below.

²⁷⁸ Reconciliation, also called true-up, refers to recovering the difference between actual costs and revenues previously established to collect projected costs.

²⁷⁹ Schedule J-1 REV at 49-52.

²⁸⁰ PREPA's Brief on Substantive Issues at 86.



kWh) terms, the volatility of the riders would be the same, whether they include the entire fuel and purchased-power costs or only the deviation from the rate-case filing. In percentage terms, the riders would be more volatile if they reflect only the deviations from the base value. As for rate-design options, Mr. Chernick explains how PREPA can build even very large time-of-use variations into the base rates.²⁸¹ Finally, PREPA has not explained how the fuel and purchased-power riders attract frivolous litigation, or why such litigation would be avoided by changing the tariff structure. Moreover, separating the fuel costs into a base portion and a rider portion will make the tariffs and bills more complex and confusing for customers. That is particularly true in the current situation, in which the projection of fuel costs PREPA presented in its original rate application has turned out to be understated, requiring a large FCA from the effective date of the new rates.

377. We approve PREPA's proposed quarterly reconciliation and update of the FCA and PPCA, along with the concept of an accelerated adjustment in the event of a major change in expectations during a quarter. We are concerned that PREPA's definition of a major change as a 10% difference in the estimated quarterly cost of the rider may not be sufficiently protective of PREPA's financial position under some circumstances and may result in unnecessary adjustments in other situations. For example, a 5% increase in fuel prices on top of \$100/bbl oil would have a larger effect on PREPA's cash flow than a 10% increase on \$30/bbl oil; under PREPA's proposal, the first situation would not trigger an early adjustment, but the second would. Similarly, PREPA's fuel costs may increase due to an outage at one of the co-generators, or vice versa; if forecast fuel costs rise 10% and purchased-power costs fall 10%, the PREPA proposal would require early adjustments in both riders, even though the two effects would be partially offsetting. And if the fuel and purchased-power forecasts both rose 9%, PREPA would be subject to more stress than if purchased-power costs rose 10% and fuel costs fell slightly; again, PREPA's proposal would result in early adjustment in the less stressful case, but not the more stressful one.

378. We therefore will define a combined dollar level, rather than separate percentage levels, to initiate early adjustment in the FCA and PPCA.

Directives

1. *All fuel and purchased-power costs shall be collected through the riders, zero through base rates.*
2. *The riders shall be updated quarterly. PREPA shall include an acceleration provision that is triggered upon a finding by the Commission that the combined difference between projected costs and projected revenues for the FCA, PPCA and the energy-efficiency adjustment in the current quarter exceeds \$20 million.*

²⁸¹ Chernick Report at 89-92.



3. ***PREPA shall correct all erroneous language in the draft riders and submit the revised language to the Commission for approval.***

B. CILT

379. PREPA has proposed that the CILT rider, which will collect the costs of providing statutorily mandated amounts of free electricity to municipalities, be applied to all loads other than the fixed blocks of the RFR tariff. The charge for the RFR fixed blocks are specified by Act 22-2016, with any excess to be priced at the rate for the non-subsidized GRS tariff.

Directives

1. ***The Contribution in Lieu of Taxes (CILT) shall no longer be collected by PREPA via the 0.89 factor that had been in the denominator of its Fuel and Purchased Power Adjustors. Rather, CILT will be collected through a separate rider. The FY2017 CILT amount shall be \$51,783,821.²⁸²***
2. ***Customers in the RFR class shall be exempt from the CILT as applied to the fixed block consumption charge, but shall pay CILT for consumption exceeding the fixed block.***
3. ***PREPA shall correct the erroneous language in the draft rider and submit the revised language to the Commission for approval.***
4. ***Reconciliation of the CILT rider shall occur annually with each budget examination or three-year rate case filing, whichever applies.***

C. Energy efficiency

380. As required by the Commission's rule on Filing Requirements²⁸³, PREPA proposed an energy efficiency rider to recover expenses related to the implementation of energy efficiency and demand-side management programs. The rider would create an Energy Efficiency Charge ("EEC") that would recover the costs of energy efficiency programs from all customers on a per kilowatt-hour basis. PREPA proposes that the EEC (in \$/kWh) be calculated as the total cost of energy efficiency programs (in \$) divided by the total gross retail sales (in kWh).

²⁸² See Attachment 4, page 2 of 2.

²⁸³ Regulation 11720, New Regulation on Rate Filing Requirements for the Puerto Rico Electric Power Authority's First Rate Case, March 28, 2016, Section 2.12(D).



Directive

The Commission will address the details of this rider when it determines energy efficiency programs, providers and budgets. For now, PREPA shall revise the rider to correct drafting errors and to provide for annual adjustment and reconciliation.

D. General

381. The Commission was disappointed to discover that the language for the riders on energy efficiency, load retention discount and other purposes, prepared by expensive consultants at ratepayer expense, contain multiple errors, resulting from a hasty copying of language from the existing fuel cost rider. PREPA shall fix all these errors in the compliance filing and avoid exposing ratepayers to the costs of such avoidable errors.

IV. Subsidies

382. As just noted, PREPA has traditionally increased the FCA and PPCA by 12.36% (by placing 0.89 in the denominator) to recover certain subsidies. The levels of these expenses and discounts do not vary with fuel and purchased-power costs, so removing them from the fuel and purchased power adjustors and recovering them through a separate rider will better track costs. This change is also required by statute.

383. There remain two other decisions: (1) Which items will be included in the subsidies rider, vs. recovered through base rates? and (2) Will any customer classes be exempted from any of the subsidies?

384. The decisions for the Commission to make are relatively simple: Which items that PREPA calls "subsidies" shall be recovered through the special "subsidies" charge separately stated on customer bills, and which will be recovered through PREPA's base rates? As an aside, the recovery through base rates can occur in two different ways. One way is treat the item as an expense, then either state it separately as a distinct expense or include it in the A&G expense category. The other way is to treat the item as a reduction in revenues (which may be directly associated with the tariff class in which the customers receiving the revenues resides); then the lower level of adjusted revenues will increase the revenue deficiency and hence the required base-rate revenue increase.

385. Specifically, we find that the direct-debit credit is not a subsidy; it is a revenue reduction that PREPA justifies in terms of cost savings. Treating the \$129,428 (PREPA Schedule L-2) of the direct-debit credit as a reduction in PREPA's existing revenues rather than a subsidy increases the base revenue deficiency by \$129,428.²⁸⁴ On the other hand,

²⁸⁴ See Attachment 3, page 10.



regarding the \$5.8 million Energy Commission Assessment, Article 6.16(c) of Act 57-2014²⁸⁵ establishes that PREPA "will obtain the funds for the payments to the Commission from income derived from subsidies within its rate structure." Accordingly, the \$5.8 million will be recovered through the subsidy rider.

386. The RFR fixed blocks are exempt from the subsidy charge, as well as from the CILT charge. However, Act 22-2016 requires any consumption in excess of the applicable fixed block of consumption be billed at the applicable rate for non-subsidized GRS customers, which includes the CILT and subsidies charges. PREPA also proposed to exempt LRS and RH3 customers from the subsidy charge, even though those customers currently pay for such charges through the fuel and purchased-power markups. While we are sympathetic to the particular financial conditions of LRS and RH3 customers, we find that PREPA has not properly justified exempting those customers from the subsidy charge, nor has it provided a rationale for exempting these two groups of customers, but not other subsidized customer classes, such as, for example, customers on life-preserving equipment.

Directives

1. *Based on legislative mandates and our interpretation of the term "subsidy," the following discounts and payments will be included in the subsidies charge:*

*Life-Preserving Equipment
RFR Tariff
LRS Tariff
RH3 Tariff
Residential Fuel Subsidy
Analog Rate
General Agricultural Service
Hotel 11% Discount
Rural Aqueducts on GRS
Downtown 10% Subsidy
Condo Common Areas
Act 73 Income Tax Credit
Public Lighting
Energy Commission Assessment
Irrigation District Deficit*

The FY2017 Subsidies amount shall be \$136,943,067.²⁸⁵

PREPA proposed including four other items in the subsidies charge. The Commission disagrees, as follows:

²⁸⁵ See Attachment 4, page 2 of 2.



2. *The direct debit credit shall be removed from the subsidies line item because it will not be treated as a subsidy*
3. *The non-recovery of certain costs from net-metering customers is not viewed by the Commission as a "subsidy" and therefore will not be recovered through the subsidies charge. It is a reduction in revenue, like the direct debit credit.*
4. *The economic-development rider is not approved at this time. The Commission will discuss it further with participants in the upcoming rate design proceeding.*
5. *As for the load-retention rider, the Commission will address the appropriateness of including any resulting reduction in revenues in the subsidy charge if and when it approves specific applications.*

The following shall also apply:

6. *The only PREPA sales that will be exempt from the subsidy charge are the fixed blocks of the RFR tariff and some portions of the grandfathered net metering customers' consumption, as explain below. RFR customers shall pay the subsidy charge only for their consumption above their fixed-price consumption block.*
7. *The subsidies rider shall be reconciled annually.*
8. *Future negotiations between the Irrigation District and its non-agriculture customers shall involve ICPO to the extent ICPO wishes to participate. This requirement is not intended to exclude others.²⁸⁶*
9. *PREPA shall correct all erroneous language in the draft rider and submit the revised language to the Commission for approval.*

Attachment 4 to this Order contains a table which displays the Commission's decisions.

²⁸⁶ We require the negotiators to allow the participation of ICPO (if ICPO chooses to participate) because it is illogical to "negotiate" water rates to a level that is below PREPA's costs on the expectation that customers not present in these "negotiations" have to pay for the deficit. We are not giving ICPO a veto over the negotiations. We are saying that the Commission therefore will take seriously any ICPO objection to the outcome of those negotiations. Since ICPO's clients are both consumers of both water and electricity, ICPO will be in a good position to advise the Commission on the appropriateness of the outcome. The Commission has no objection to other customers participating in those negotiations. As PRASA says, all affected parties will be aware of the obligations and prices to be paid for the sale of water.



V. Net-Metering for distributed generation

A. Background

387. Distributed generation comprises small generation resources connected to the distribution system.²⁸⁷ Some of these facilities are free-standing facilities that sell power to the utility, but an increasing number of distributed generators throughout the developed world are located behind customers' meters, *i.e.*, on their premises. In Puerto Rico today, most of these customer-premises facilities are solar photovoltaic systems.

388. Act 114-2007 authorizes certain owners of distributed generation to engage in net-metering. The concept is that the energy produced by the facility reduces the customer's billing determinants (usually monthly metered energy, in kWhs). In many states' version of net-metering, when the facility produces more energy than the customer uses in a month, the excess energy is carried over as a credit against usage in future months. Each excess kWh is valued (*i.e.*, effectively compensated for) at the energy rate in the tariff under which the customer is served. Excess generation over the course of the year is often credited at a lower rate.²⁸⁸

389. Under Act 114-2007, net-metering is available to residential systems with capacity up to 25 kW, and non-residential systems with capacity up to one MW (1000 kW). The law allows for customer net excess generation to be carried over as a kWh to the following month, but the credit is limited to a daily maximum of 300 kWh for residential customers and 10 MWh for commercial customers.

390. PREPA proposes to increase the customer charge (which would not be reduced by net metering). We addressed that issue in Part Three-II above, rejecting the \$8.00 charge in favor of a customer charge at \$4.00. PREPA also proposes to charge net-metering customers for the CILT and Subsidy charges on both the energy provided by PREPA to the customer and the energy provided by the customer's generator to the customer; in other words, on the customer's full consumption.

391. Because the Commission will initiate a separate proceeding to examine rate design and net-metering, given the complexity of this rate case we address here a limited set of issues: treatment of credits, charges and exclusions for net-metering customers. As for all others raised by PREPA and intervenors, the statute does not require their resolution in this specific rate case; nor was there sufficient evidence or time to do so. We will address them in the upcoming rate design proceeding.

²⁸⁷ Sometimes, the term includes small units connected to the transmission system close to load.

²⁸⁸ The details in these arrangements vary among jurisdictions.



392. The remainder of this Part Three applies to renewable net-metering.

B. Credits and charges

393. Customers without generation behind the meter take all their energy from PREPA. The energy delivered to the customer from PREPA is defined as *inflow* in the Restructuring Order. As described in more detail below, we find that each net-metering customer should pay the same energy charges for inflow as other customers in its tariff class.

394. In addition, net-metering customers also provide energy to PREPA, which we termed *outflow* in the Restructuring Order. As described in more detail below, we find each grandfathered net-metering customer should be credited for outflow at the full energy charge applicable to its class, while a non-grandfathered net-metering customer should receive a somewhat lower credit, excluding certain non-by-passable charges.

395. Among the non-by-passable charges is the Transition Charge. The manner in which the Transition Charge is to be collected from all net-metering customers was decided and explained in the Transition Charge proceeding.²⁹⁹ Those dispositions remain unaltered.

396. Typically, a net-metering customer will experience outflow in some hours of a month, and inflow in other hours. It is our intention that each customer be billed monthly for the sum of the inflow over the metering intervals with net inflow, and be credited for the sum of the outflow over the metering intervals with net outflow.²⁹⁰

397. For *outflow* from *non-grandfathered* net-metering, the credit shall be the sum of the customer's base rate energy charge; the fuel charge; the purchased-power charge; and the subsidies for Hotel Discount, Downtown Commerce, Churches analog, rural aqueducts, GAS, Condominium Common Areas, and irrigation district; and the Act 73 Tax credit. These items are, or are akin, to normal utility costs (which net-metering customers are already allowed to avoid).

398. For *outflow* from *non-grandfathered* net-metering, the credit shall **not** include: CILT, the energy efficiency charge (when created), public lighting subsidy, the Energy Commission assessment, and all of the items denoted as "help to humans" during the technical hearing: life-preserving equipment, LRS Tariff, RI13 tariff, residential fuel subsidy,

²⁹⁹ See Restructuring Order, Docket No. CEPR-AP-2016-0001, June 21, 2016, at 71-84.

²⁹⁰ By "metering interval," we mean the time increments over which the meter records usage. Such interval shall not be less than 15 minutes and shall be an hour if that interval is possible with the available metering. We do not intend that PREPA replace meters that are capable of two-way hourly metering, if the primary purpose of such replacement is to reduce the time increment for net metering.



and the fixed public housing rate (RFR tariff). These items are mostly social commitments—things that benefit the public as a whole, including net-metering customers. As Mr. Chernick explained, net-metering customers are actual or potential beneficiaries of energy efficiency programs:

Energy-efficiency program costs are very different from the costs of traditional utility functions, in that a distributed generation customer can use energy efficiency services regardless of how much energy the customer takes from PREPA. While the power that flows out from the distributed generation customer to the delivery system can reduce PREPA's costs of generation, transmission and distribution, it does not affect the demand for energy efficiency services. Nor is the energy from distributed generation likely to reduce the extent to which a net-metering customer can participate in the energy-efficiency program.²⁹¹

399. For **outflow** from **grandfathered** net-metering, the credit shall be the sum of: Base Rate, fuel charge, purchased power charge, all items in the Subsidy Rider, CILT, and energy efficiency charge.

400. For **inflow**, each net-metering customer shall pay the full rate for its class, including the base rates, fuel charge, power purchase charge, CILT charge, full subsidy charge, and the energy efficiency charge.

401. There shall be no retail charge imposed on the energy that a net-metering customer receives from its renewable facility behind its meter (i.e. self-consumption). This result contrasts with the Transition Charge, which as explained in our Transition Charge Resolution, will be billed to each non-grandfathered net-metering customer based on the customer's total electric consumption, whether provided by PREPA or by its own generation.

C. Directives

1. ***PREPA shall charge net metering customers for inflow from PREPA's system at the normal rate for the tariff class.***
2. ***PREPA shall credit non-grandfathered net metering customers for outflow at the sum of the customer's base rate energy charge; the fuel rider; the purchased-power rider; and the portion of the subsidy charge that covers Hotel Discount, Downtown Commerce, Churches analog, rural aqueducts, GAS, Condominium Common Areas, and Irrigation district; and the Act 73 Tax credit.***

²⁹¹ Chernick Report at 121.



3. *PREPA shall credit grandfathered net metering customers for outflow at the sum of the customer's base rate energy charge; the fuel rider; the purchased-power rider; the energy-efficiency cost adjustment; the CILT rider; and the subsidy rider.*
4. *All credits should be applied on each monthly billing cycle. For the billing cycle closing in June of each year, seventy-five percent (75%) of any excess kWh credit accumulated by the net-metering customer during the previous year and which remains unused, shall be purchased by PREPA based on the applicable outflow credit for each customer. The remaining twenty-five percent (25%) shall be assigned to PREPA to be distributed in accordance with Section 5 of Act 114-2007.*
5. *PREPA shall provide the Commission with a monthly report of net metering applications, and actual connections, by number and capacity, and by tariff class.*

D. Exclusions

402. PREPA proposed to exclude the low-income classes from the net-metering option on the grounds they are already subsidized. This reasoning assumes that the net-metering benefit is technically a subsidy. We know that is the position of PREPA's consultant but the Commission has not reached that conclusion. Nor should anyone else, until we have a well-prepared marginal cost study and have thoroughly evaluated the benefits of renewable energy—an effort that only rudimentarily begun at the Technical Hearing. Moreover, there are already some net-metered LRS customers. Finally, under PREPA's proposal, a GRS customer who had net-metering but then suffered a financial reversal and thus ended up on the LRS tariff would lose his net-metering status. The Commission rejects PREPA's proposal to deny net-metering to low-income classes. Net-metering shall remain open to all customers with renewable generation.

E. Legal analysis regarding net-metering

403. In this section, the Commission provides the legal analysis that determines: (i) the treatment that would apply to grandfathered net metering customers; (ii) the treatment that would apply to non-grandfathered net-metering customers; and (iii) the requirements for determining whether applying a proposed charge to a net-metering customer is just and reasonable. Before making these determinations, we must first understand the original treatment received by net-metering customers under Act 114-2007,²⁹² and then the amendments to said Act introduced by Act 4-2016.

²⁹² An Act to order and authorize PREPA to establish a net-metering program, as amended, 22 L.P.R.A. §1011 *et seq.*



1. Original treatment of net-metering under Act 114-2007

404. Section 4 of Act 117-2007 originally forbade PREPA from imposing additional charges on net-metering customers or increasing their monthly consumption charges.²⁹³ Section 5 of Act 114-2007 established that, when a customer's inflow from PREPA was greater than the outflow from its generators, PREPA would charge that customer for the net inflow (i.e., the excess of inflow over outflow). As such, prior to Act 4-2016, net metering customers were subject to PREPA's regular rates, to be applied to their net inflow from PREPA (i.e., the total amount of energy provided by PREPA minus the total amount of energy supplied by the customer to PREPA's system). Under this treatment, net-metering customers paid PREPA's entire rate—which included CILT, subsidies and grants—on their net inflow.²⁹⁴

2. Amendments to Act 114-2007 made by Act 4-2016

405. Sections 29 and 30 of Act 4-2016 amended Sections 4 and 5, respectively, of Act 114-2007 to eliminate the prohibition against additional charges originally contained in Section 4 of Act 114-2007. These new sections introduced the test to be used by the Commission in evaluating any additional charge PREPA sought to impose on net-metering customers. Section 29 of Act 4-2016 also amended Section 4 of Act 114-2007 to provide a general exemption from additional charges (commonly referred to as the "grandfathering clause") to any customer who, by the date of approval of Act 4-2016: (i) has "entered into a net metering agreement"; or (ii) "is in the process of evaluating or developing a renewable energy project which shall be interconnected to the system of the Authority." The exemption also applies to a net-metering customer who, after the date of approval of Act 4-2016 but prior to the Commission approving such additional charges, submits a project for interconnection evaluation and complies with certain other requirements stated in the clause. Customers who comply with the aforementioned criteria are deemed to have been grandfathered, and therefore are exempt from payment of additional charges for a period of twenty (20) years from the date of approval of Act 4-2016.

²⁹³ This prohibition had a reasonable purpose: to protect net-metering customers from penalties that could be imposed by PREPA to compensate for reductions in revenues due to reduced sales or to dissuade customers from installing distributed generation systems. We do not interpret it, however, to mean that net-metering customers were entitled to avoid costs reasonably incurred by PREPA in providing services from which net-metering customers benefited in equal proportion to non-net-metering customers.

²⁹⁴ Prior to the approval of Act 57-2014, PREPA's costs were bundled together under general line items—for residential customers, mainly base rate. Customers also paid a separate fuel charge and power purchase charge. PREPA's new transparent bill (required by Section 6B of Act 83 and approved in Docket No. CEPR-AP-2016-0002) unbundles many of the costs and requires them to be separately stated. This requirement does not, however, mean that each new line item charge identified in the bill consists of a new charge not previously included in PREPA's rates.



406. Section 5 of Act 114-2007, as amended by Section 30 of Act 4-2016, provides²⁹⁵ that grandfathered net-metering customer shall be subject to the provisions of Section 5 as that section existed prior to its amendment (in essence, that net-metering customers would pay PREPA's rates on their net inflow only). Non-grandfathered net metering customers, on the other hand, must pay PREPA's normal rates on their net inflow, plus any additional charges approved by the Commission.²⁹⁵

3. Application of amended Act 114-2007 to grandfathered net-metering customers

407. Windmar, Sunnova and ICSE-PR argue that the grandfathering clause prevents PREPA from billing any charge approved by the Commission under Section 4 of Act 114-2007 to grandfathered net-metering customers.²⁹⁶ This argument is incorrect, because it exempts certain net-metering customers from paying for the types of costs they currently bear and had historically borne.

408. Both grandfathered net-metering customers and non-grandfathered net-metering customers currently pay PREPA's full rate (including costs such as CILT and subsidies, among others) on their net inflow (the excess of inflow over outflow). If grandfathered net-metering customers currently pay PREPA's full rate on their net inflow, then that is the treatment that the grandfathering clause seeks to continue after the approval of Act 4-2016 and this Order. Interpreting the grandfathering clause to prevent PREPA from collecting from grandfathered net-metering customers these types of charges—charges designed to recover costs embedded in the rates they currently pay (with the only difference being that those costs are now stated separately in PREPA's bills)—would mean granting those customers a different treatment than the one they had historically received under Act 114-2007.

409. The purpose of grandfathering is to maintain the *status quo*, not improve it.²⁹⁷ The Commission holds, as it previously did in the Restructuring Order,²⁹⁸ that there is no basis to inferring a legislative intent to exempt grandfathered net-metering customers from

²⁹⁵ See Section 5(b) of Act 114-2007, as amended by Act 4-2016 ("The Electric Power Authority may bill a customer for the net electricity supplied, as well as the charge to be approved by the Energy Commission in accordance with Section 4 of this Act").

²⁹⁶ See Windmar's Legal Brief at 7; Sunnova's Legal Brief at 7; See also ICSE-PR's Legal Brief at 15 ("ICSE adopts and endorses Windmar's Group legal position in question 25th to 33rd").

²⁹⁷ See Restructuring Order, Docket No. CEPR-AP-2016-0001 at 82, ¶ 319 (The legislative intent of grandfathering is "to ensure that those who made investments in reliance on the law as it existed before a statutory change are treated the same after the statutory change.")

²⁹⁸ See Part III.D.3.



all charges, including those charges which have always been included in PREPA's rates²⁹⁹ and which are now being separately stated in each bill.

4. Application of amended Act 114-2007 to non-grandfathered net-metering customers

410. If grandfathered net-metering customers are responsible for paying charges approved under Section 4 of Act 114-2007 on their net inflow, then the Commission must conclude that non-grandfathered net-metering customers may be responsible for paying those same charges on their inflow (i.e., the total amount of energy supplied by PREPA to the customer without discounting the amount of energy supplied by the customer to PREPA's grid).²⁹⁹ Another way of stating it would be that charges approved by the Commission under Section 4 of Act 114-2007 are imposed on a non-grandfathered net-metering customer's inflow from PREPA without receiving a credit for such charges based on the customer's outflow.

411. Some intervenors argue that charges approved pursuant to Section 4 of Act 114-2007 may be imposed only on the net inflow of non-grandfathered net-metering customers.³⁰⁰ We reject this interpretation as inconsistent with the legislative intent in amending Section 4 of Act 114-2007. In evaluating the applicability of the Transition Charge to non-grandfathered net-metering customers, we stated that "Act 114-2007 nowhere addresses, let alone authorizes, the unfair and destabilizing effect of allowing some customers to shift their costs to others."³⁰¹

412. Accordingly, the Commission holds that charges approved under Section 4 of Act 114-2007 may be imposed on a non-grandfathered net-metering customer's inflow from PREPA, without receiving a credit for such charges on their outflow.

²⁹⁹ A similar result would be reached if the Commission interpreted the phrase "additional charges" to mean charges which may be imposed on the inflow, as opposed to current charges which are imposed on the net inflow. An additional charge cannot be a charge to which a customer has always been responsible for paying. If the charge were applied to the *total* inflow (without receiving a credit for that charge based on the outflow), then the charge *would be* an "additional charge" with respect to the portion of the customer's consumption not previously used to determine a customer's bill.

³⁰⁰ See Windmar's Legal Brief at 7 and Sunnova's Legal Brief at 7.

³⁰¹ Restructuring Order at 76, ¶ 297. ACONER's legal brief recognizes the validity of the Commission's determination and that other intervenors agreed with such an interpretation during the Technical Hearing. See ACONER's Legal Brief at 5 ("Grandfathered" customers will pay the special charges for the net energy kWh consumed, while the "non-grandfathered" customers will pay on the total energy kWh consumption"). See also Technical Hearing Recording, at 3:43.



5. Requirements for evaluating a proposed charge on non-grandfathered customers under Section 4 of Act 114-2007

413. Having determined that PREPA may impose charges on the inflow of non-grandfathered net-metering customers, we must apply to the proposed charges the four standards stated in Section 4 of Act 114-2007. Specifically, the Commission must determine whether a particular charge (1) is "just"; (2) is related to the grid services received by net-metering customers; (3) is "excessive"; and (4) creates an obstacle to the development of renewable energy projects.

a. What is "just"?

414. The first criterion is whether the proposed charge is just. To determine how to apply this criterion, the Commission must first determine what is "just". Sunnova argues that there is no fixed result for "just and reasonable rates", but rather that it refers to a "zone of reasonableness" and that its purpose is "to protect consumers from unreasonable costs and prevent utilities from raising prices at will."³⁰² Other intervenors argue that the term "just" must be defined in the limited scope of Act 114-2007 and its applicability to net-metering customers. That is, that a decision to approve or not approve a charge on the inflow (without receiving a credit for that charge based on the outflow) of non-grandfathered net-metering customers need not result in just and reasonable rates for all other customers, if the result is "just" in the limited scope of net-metering customers.³⁰³

415. But the term "just" must be defined in the broader context of Act 57-2014. Said Act requires electric service rates to be "just and reasonable" for all customers. The evaluation of the applicability of a charge under Section 4 of Act 114-2007 is made within the context of a rate review procedure under Act 57-2014 and not within a separate procedure under Act 114-2007. As such, the term "just" applies to all customers, not only to net-metering customers.

416. We reached a similar conclusion in our previous decision in the Restructuring Order. On that occasion, we stated that "justness to net-metering customers does not require making non-net-metering customers pay more so that net-metering customers can pay less."³⁰⁴ We further stated that "the term 'just' applies to all customers, not only net-metering customers" and that "to apply the term 'just' only to the net-metering customers would mean that the other customers are subject to some standards other than 'just', a result contrary to the tenets of Act 57-2014."³⁰⁵

³⁰² See Sunnova's Legal Brief at 3.

³⁰³ See Windmar's Legal Brief at 10.

³⁰⁴ Restructuring Order at 75, ¶ 292.

³⁰⁵ *Id.* at 75, ¶ 293.



417. The Commission cannot ignore the strong public policy in favor of the development of renewable energy generation, specifically distributed generation, and has taken affirmative steps in other proceedings, such as the IRP Order, to promote integration of renewable energy. However, the existence of said public policy does not override the statutory requirement imposed on the Commission that rates be just and reasonable for all customers. A charge which unduly shifts the burden from one customers to another, absent express legislative intent, such as in the case of a grandfathering clause, cannot result in "just and reasonable" rates.

b. Costs related to grid services received by net-metering customers

418. The Commission must determine whether a charge is related to the grid services received by net-metering customers. We interpret this phrase to mean that net-metering customers should pay for the services they receive.

419. Act 114-2007 does not create a separate class of customers who are responsible only for a special, limited and differentiable portion of PREPA's costs. The difference between a regular customer and a net-metering customer is that net-metering customers are able to reduce their exposure to PREPA's costs by self-generating a portion of the energy they consume, and also to receive a credit for the energy they export to PREPA's grid. Neither Act 114-2007 nor the general public policy behind net-metering programs grants such customers the right to avoid costs merely by being net-metering customers.

420. If, for example, a net-metering customer decided to switch off her distributed generation system during any given period of time, that customer would be responsible for the entire costs incurred by PREPA (and paid for by non-net-metering customers), not just a portion of the costs assigned to net-metering customers. Charges which are borne by all of PREPA's customers, regardless of whether they are net-metering customers or not, should be paid for in equal proportion by all customers.

421. A coherent net-metering policy recognizes the benefits of net-metering and allows a customer to reduce its responsibility for costs directly associated with his or her consumption. PREPA's obligation to provide certain services, such as public lighting, will continue regardless of the number of net-metering customers. A customer's decision to net-meter does not reduce the benefits he or she receives from such services. Therefore, it would not be reasonable for non-grandfathered net-metering customers to avoid responsibility for costs which benefit them in equal proportion to non-net-metering customers, simply because they have a net-metering agreement.



c. What is "excessive"?

422. The third criterion the Commission must consider is whether a charge is excessive. We have previously defined the term as something that is beyond usual, proper, necessary, or normal.³⁰⁶ We have previously stated that "a charge is not 'excessive' if it does no more than recover costs legitimately applied to a customer."³⁰⁷ In other words, the Commission must determine whether a proposed charge (or the total amount thereof) would result in the customer paying beyond what is necessary to cover the costs incurred by PREPA in servicing that customer. A charge which recovers the proper share of costs from net-metering customers cannot be considered excessive, merely because it is inconvenient.

d. Obstacle to the development of renewable energy projects

423. The Commission addressed the meaning of "obstacle" in our Restructuring Order, at ¶¶ 295 and 296:

An "obstacle" is "something that impedes progress or achievement." One must understand the term "obstacle" in context. An obstacle is a change to what is normal—a barrier that impedes normal progress. It is a change to the status quo that makes progress more difficult than before. The Transition Charge reduces legacy costs. Requiring the customer to continue to bear those reduced costs is not an obstacle. The term "obstacle" cannot logically refer to the normal costs of interacting with society. That is all that the Transition Charge is: a means of recovering from all customers those costs legitimately and equitably allocated to all customers.

If the Commission were imposing on net-metering a new, unjustified cost, that would be an obstacle. The Transition Charge is not a new cost; it is a mechanism for reducing existing costs for which all customers, including net-metering customers, should be responsible. A charge that is the same for all customers cannot logically create an obstacle for net-metering customers. It takes nothing away from the good cause of renewable energy to reject this reasoning. [Citations omitted.]

424. This reasoning applies equally here. While the Transition Charge converted existing legacy cost into lower costs, the underlying costs at issue in that proceeding share an essential feature with the costs at issue in this proceeding: they are costs that are the responsibility of all customers. And so we conclude again: "A charge that is the same for all customers cannot logically create an obstacle for net-metering customers."

³⁰⁶ Restructuring Order at 76, ¶ 294.

³⁰⁷ *Id.*



425. ACONER argued that any charge which increases the amount of time required for a customer to receive a return on her investment is an obstacle.³⁰⁸ Windmar argued that if a charge reduces the pace at which renewable energy is being integrated into PREPA's grid, then that charge would be an obstacle under Section 4 of Act 114-2007.³⁰⁹

426. The problem with these arguments is that, taken literally, they would treat *any* charge as an obstacle because any charge could decrease profitability or slow the pace of investment. Accepting these arguments would require us to eliminate all charges on net-metering—a result inconsistent with the legislative intent that we evaluate each of the four criteria separately.³¹⁰

³⁰⁸ See ACONER's Legal Brief at 8.

³⁰⁹ See generally Technical Hearing Panel I Part 2 Recording, 3:26:00.

³¹⁰ As part of the Directives listed in Part Three-V.C, the Commission is directing PREPA to provide monthly reports of net-metering applications and actual connections, which the Commission will use to, along with stakeholder participation, develop reliable and empirical metrics to assess and evaluate the impact of proposed charges on net-metering customers.



PART FOUR: Procedures for Establishing Revenue Requirements and Rates After FY2017

I. The goals: Disciplined spending, improved performance

427. Procedures for establishing revenue requirements and rates must serve multiple goals, including efficient performance by the utility; timely, predictable recovery of reasonable utility costs; transparency, to enable the rigorous oversight by the regulatory commission and consumer representatives; elimination of waste; and promotion of innovation.

428. If PREPA were an investor-owned utility, the Commission could induce efficient performance by making the utility shareholders absorb the costs of poor performance. But PREPA has no private shareholders to penalize if costs are excessive or performance suboptimal. Once PREPA incurs costs imprudently, the dollars are gone and the regulatory options diminish. If those imprudent costs are not paid for with dollars recovered from ratepayers, PREPA would have to divert funds from other purposes needed to serve ratepayers. PREPA and its ratepayers are a closed system.

429. The challenge, therefore, is to design procedures for financial discipline that, rather than blocking recovery of imprudent costs already incurred, instead prevent imprudent costs from being incurred. This Part Four examines options and establishes solutions. Part Four-II describes PREPA's proposed rate mechanism. Part Four-III presents the procedures we adopt for examining PREPA's budgets and setting its rates. Part Four-IV contains directives to PREPA.

II. PREPA's Proposed Rate Mechanism

430. PREPA proposed something called a Formula Rate Mechanism ("FRM"). As Commission consultant Woolf explained, the primary difference between FRM and traditional ratemaking is how each treats previously incurred costs. As explained in Part Two, a revenue requirement is based on projections of costs and sales. Under traditional ratemaking mechanisms, when results vary from projections the utility either under-collects (if actual costs exceed projections or actual sales fall below projections) or over-collects (if actual costs are less than projections or actual sales are more than projections). The typical FRM (including PREPA's proposed FRM) does things differently. At year end there is a "reconciliation" (also known as a "true-up"). If revenues are insufficient to cover actual costs, customers make up the difference. If revenues exceed actual costs, customers get a refund. If a utility tends to overspend its budgets, FRM shifts the financial burden to the customers.



431. PREPA's proposal, offered through its witness Dr. Hemphill, has six main elements:

432. **Three-year rate case:** A general rate case would occur every three years. As we have done in the present case, the Commission would (a) establish PREPA's revenue requirement based on then-current information, (b) allocate revenue responsibility based on a current cost-of-service study, and (c) design rates according to the Commission's then-current rate design goals.

433. **Interim rate cases:** In the years between the three-year rate cases, PREPA proposes to have annual proceedings to update the rates for the next year, to reflect new projections of costs and sales. In these interim cases, no changes to the revenue allocation or rate design would occur.

434. **Annual reconciliation:** In each rate case (whether three-year or interim), the Commission would reconcile the prior year's actual results to its projections, by refunding to ratepayers any over-collections and charging them for under-collections.

435. **Use of budgets:** PREPA proposes to use budget forecasts to set revenue requirements, in both the three-year and the interim rate cases. The budget forecasts would be divided by the sales forecasts to determine rates for the forthcoming year. (Dr. Hemphill did not address the fact that the timing of PREPA's budgeting does not synchronize with the timing of his proposed rate proceedings—a problem we solve in Part III below.)

436. **Other inputs to rate cases:** The information and findings from the most recent IRP proceeding will inform the capital expenditure forecasts in each three-year rate case and interim rate case.

437. **Adjudicated proceeding:** Each three-year rate case and interim rate case would involve an adjudicated proceeding.

Dr. Hemphill asserts that his six steps allow the Commission to protect customers from excess costs, because the Commission can "track PREPA's progress in meeting the goals set in each annual business plan."³¹¹ We are not convinced. His proposal is little more than a copy-paste of mainland U.S. investor-owned utility practices into Puerto Rico's uniquely difficult context. Without the major amendments we introduce next, his proposal is more likely to burden customers with PREPA's imprudent costs rather than to prevent PREPA from incurring imprudent costs.

³¹¹ Hemphill Additional Supplemental Testimony at 2, ll. 26-32.



III. Disciplining PREPA's spending: Four integrated procedures

438. Having considered the contributions of Dr. Hemphill, Mr. Woolf, and various intervenors, the Commission will adopt three distinct procedures, each designed to impose discipline on PREPA's spending. Those procedures are: (a) annual budget examinations starting with FY2019, (b) reconciliation procedures for each year's rates, and (c) a unique procedure for FY2018. After describing these procedures, we reference the upcoming performance proceeding. Over time, these four efforts will make PREPA's service worth the money customers pay.

A. The annual budget examinations starting with FY2019

439. To ensure that PREPA's rates do not exceed its reasonable costs, the Commission will review PREPA's budgets and spending annually, using two different procedures.

440. One procedure will be the "*three-year rate case*." In this proceeding, the Commission will review PREPA's cost-reduction efforts, the physical condition of its system and its prior and prospective budgets for each major department. With that information, the Commission may establish a new revenue requirement, a new cost of service, a new revenue allocation and a new rate design. Based on those components, the Commission will establish prospective rates that reflect all feasible cost reduction efforts and thus recover, but do not exceed, the reasonable costs PREPA must incur to serve its customers reliably.

441. The other procedure will be a series of "*one-year budget examinations*" that occur between each three-year rate case. In these proceedings, the Commission will examine PREPA's proposed departmental budgets for the coming fiscal year, compare them to the prior year's budgets, then use that information to establish a just and reasonable revenue requirement for the fiscal year beginning on the upcoming July 1. The purpose of this procedure will be to update the prior year's revenue requirement. This updated revenue requirement will reflect (a) all feasible cost reductions that have been implemented in the prior year, along with those cost reductions that must be implemented in the next year; and (b) any known and measurable changes that we expect to occur in the upcoming fiscal year. As for revenue allocation and rate design, while time constraints will usually preclude changes in the one-year budget examinations, the Commission will adopt Mr. Woolf's recommendation to preserve its powers to make such changes prior to the next three-year rate case.

442. In each of these two types of procedures—the three-year rate case and the one-year budget examinations—changes to the rates will be prospective only. Contrary to PREPA's proposal made through Dr. Hemphill, PREPA **shall have no expectation of readily spending more than its approved revenue requirement, then simply charging ratepayers for the excess.** Nor will we repeat—ever again—the experience of this FY2017 rate proceeding, in which PREPA's consultants offered a revenue requirement having no



visible connection to actual department budgets.³¹² Rather, the Commission will review budgets in advance, adjust them to eliminate any waste and to require all feasible cost-savings opportunities, then set revenue requirements consistent with those modified budgets. PREPA's spending must adhere to those budgets.

443. Only in extraordinary situations, where PREPA proves it had no control of a cost increase (such proof to include testimony from those individuals responsible for the areas that experienced the cost increase), will the Commission permit after-the-fact recovery of costs not pre-approved by the Commission. In those instances, where PREPA does not provide proof or did have control of the over-runs, the Commission will decide the appropriate treatment based on the facts. This approach satisfies the needs of bondholders and of customers by providing discipline over PREPA's budgets and spending.

444. Of course, this approach of matching revenue requirements to budgets can work only if the budgets are reasonable, realistic and accurate. Budgets establish contexts. They prevent arbitrary decisions undisciplined by planning and priority-setting. PREPA therefore must prepare, in advance of each proceeding (whether three-year or one-year), a set of departmental budgets applicable to the upcoming fiscal year for which a new revenue requirement is sought. This set of departmental budgets, when totaled, shall be consistent with the proposed revenue requirement (recognizing that some costs, such as fuel, purchased power and CILT, will be reconciled as required by statute).

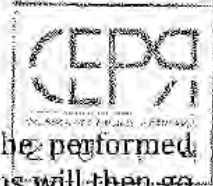
B. The reconciliation procedure and its effects on rate design

1. The procedure

445. After a fiscal year ends, some type of after-the-fact-reconciliation will be necessary because actual events will deviate from projections. Dr. Hemphill proposed to reconcile, for the immediately preceding fiscal year, the costs actually incurred and revenues actually received in that year with the costs and sales assumed by the Commission in establishing the revenue requirement for that year. But as just explained, the Commission will have capped spending at the budgeted levels. Therefore, the annual reconciliations will focus mostly on how actual sales varied from predictions, because those variances will have caused actual revenues to depart from projected revenues. We will make these reconciliation decisions within the one-year or three-year proceeding that immediately follows the year requiring reconciliation. We will call the procedure leading to the reconciliation decision the "reconciliation procedure."

446. We then have to put the reconciliation into effect. Putting the reconciliation into effect means modifying customer rates to correct any difference between the revenues PREPA actually received and the revenues PREPA was authorized to receive. We will put the reconciliation into effect beginning on July 1st of the new fiscal year following the year in which the calculation for the reconciliation was performed. Thus when FY2017 ends on June

³¹² As we explained throughout Part Two.



30, 2017, the calculations necessary to reconcile the FY2017 events will be performed sometime during FY2018, say by March 2018. Those reconciliation calculations will then go into effect starting in July 2018, *i.e.*, the beginning of FY2019.

447. We reiterate: PREPA must have budgets, and it must live with those budgets. Any expectation PREPA has that it can readily spend above the revenue requirement in one year, then charge ratepayers for the difference in a later year, is emphatically rejected. The objective of all these proceedings is to cause PREPA to make realistic budgets, and then live within those budgets. Without this discipline, PREPA's budget overruns become its customers' budget burdens.

448. For our purpose to be achieved, the rate-setting procedure and the budget procedure must be synchronized. At present they are not. PREPA's witnesses testified that the current budgeting process aims to obtaining Board approval by the June preceding a new fiscal year. Budgets emerge from the departments and get approved by the Executive Director between March and April of the fiscal year prior to the one in which the budget will go into effect. To set revenue requirements in the preceding October, as Dr. Hemphill proposed, is to set revenue requirements without a budget. To set revenue requirements in the succeeding October would be setting them after the budget already has been approved and gone into effect—too late to prevent imprudent costs. By failing to synchronize budgets and revenue requirements, Dr. Hemphill's proposal fails in its putative purpose: to empower the Commission to discipline PREPA's spending.

449. Either the PREPA's budgeting process must occur earlier, or the Commission's revenue requirement procedure must occur later. Either way, **each proceeding must begin with a budget**. Rather than determine the specific dates in this Order, we will hold in the next few weeks a technical conference to develop with PREPA a procedure that achieves the necessary synchronization. That technical conference can be used to determine all of the dates and schedules about budgeting and reconciling, including the special reconciliation for FY2017 and the budgeting for FY2018 (as discussed in the next subsection).

450. To prevent any misunderstanding: The Commission is committed to creating a rate-setting process that provides PREPA the revenues it needs to operate efficiently and pay its bondholders timely. But the Commission is equally committed to fixing a situation in which budgets are disconnected from revenue requirements. PREPA's sponsorship of Dr. Hemphill's testimony did not help solve the problem. This Order does.³¹³

³¹³ Among Dr. Hemphill's FRM examples were ones used in Illinois and at the Federal Energy Regulatory Commission. Those examples are not useful to the Commission. The Illinois statute applies to investor-owned utilities (which PREPA is not), and includes a penalty against their profits (which PREPA does not have). See Section 16-108.5(f-5) of the Illinois statute. The FERC method, like that of Illinois, applies to investor-owned utilities, not publicly-owned utilities. In at least one situation it has been criticized for limiting customers' opportunities to question the prudence of costs. See *Midwest Independent Transmission System Operator, et al.*, "Order on the Investigation of Formula Rate Protocols," Docket No. EL12-35-000, 143 FERC ¶ 61,149 (May 16, 2013).



2. The effects on rate design

451. Dr. Hemphill recommends that any reconciliation be implemented across-the-board through equal percentage adjustment in rates. Thus, each 1% decrease in the revenue requirement would cause a 1% decrease in all base rate charges (volumetric and non-volumetric).³¹⁴ Mr. Woolf disagreed. He recommended that customer charges and demand charges remain unchanged; reconciliations should be applied to only the volumetric energy charges.

452. We agree with Mr. Woolf. As his report explained, customer charges, when properly designed, include only costs that vary with the number of customers. Such costs typically include metering, billing and service drops. These costs do not change with the factors that usually affect reconciliations; specifically, changes in revenue requirements or in sales. The same reasoning applies to demand charges, which Mr. Woolf explained reflect the capacity costs of serving customers during peak periods. Like customer-specific costs, these capacity costs do not typically change due to changes in revenue requirements or sales.

453. To apply the reconciliation to fixed charges and demand charges, absent information demonstrating a change in those costs associated with the change in revenue requirements, would change the existing rate design rather than preserve it. While we will leave open an opportunity for PREPA to argue otherwise, the foregoing reasoning supports a rebuttable presumption against such argument. Only in rare situations would we expect the presumption to be rebutted.

C. The unique solution for FY2018

454. Assuming, hypothetically, that our new procedures began in early fall 2017, they would solve the problem for the fiscal year beginning July 1, 2018, *i.e.*, FY2019. We still need to address FY2018, which starts on July 1, 2017. For several reasons, FY2018 requires unique treatment. As of today, January 11, 2017, we do not know enough about FY2018 costs to determine the FY2018 revenue requirement, because our evidentiary hearing focused on FY2017.³¹⁵ In particular, we do not yet have a resolution of the bondholder negotiations—which will affect debt service costs and the debt service coverage ratio. We also have not made a final decision on AOGP. Those two matters alone could account for several hundred million dollars. Moreover, as already indicated, an October 2017 "one-year

³¹⁴ Hemphill Supplemental Direct Testimony at 6, ll. 109-112.

³¹⁵ Indeed, ¶ 74 of the Application initiating the current proceeding describes PREPA's revenue requirements panel (Pambush-Stathos-Porter) as presenting testimony that "addresses Fiscal Year 2014 (test year) costs and adjustments for known and measurable changes through FY2017."



budget examination" decision would be focusing on FY2019, not FY2018. Indeed, in Oct. 2017, FY2018 will already be three months old.

455. The logical solution—consistent with the above-stated principle that PREPA must live with its budgets rather than expect after-the-fact increases—is that any amendment to the approved FY2017 revenue requirement necessary to reflect FY2018 events shall be addressed in October 2017. At that point there will still be nine months remaining in FY2018. PREPA will have produced a FY2018 budget. In the October 2017 proceeding, therefore, the Commission will review that budget, require adjustments to reflect all prior and prospective cost savings, and establish an adjusted revenue requirement (and associated spending caps) for the remainder of FY2018. Any PREPA request beyond those approved in the October 2017 proceeding must be accompanied by clear showings of savings PREPA has produced through its internal restructuring efforts.

456. We emphasize that this October 2017 procedure to establish a revenue requirement for what remains of FY2018 is a one-time procedure necessary to smooth the transition toward the future of one-year budget examinations and three-year rate proceedings.

457. Furthermore, this one-time October 2017 proceeding would not be combined with a proceeding to determine the FY2019 revenue requirement. As emphasized above, we will not begin a proceeding on the FY2019 revenue requirement until we have from PREPA FY2019 departmental budgets. We will host a technical conference soon to determine a feasible schedule for that FY2019 proceeding, including dates for submission, interventions and evidentiary hearings.

D. The upcoming performance proceeding

458. On November 15, 2016, the Commission issued a Notice of Investigation to identify the needs and opportunities for improving PREPA's performance.³¹⁶ The investigation will include two tracks.

459. One track will include one or more independent audits of PREPA's performance. Another track will include a rulemaking process under which the Commission will prepare proposed rules to guide the Commission future oversight of PREPA's performance. Areas to cover could include PREPA's internal organization, executive and employee compensation, budgeting and spending, outsourcing of services where PREPA routinely under-performs, board governance, resource planning, operations, resource acquisition, visibility and transparency, and use of external experts.

³¹⁶ Puerto Rico Energy Commission, *Notice of Investigation to Identify Opportunities to Improve Performance of the Puerto Rico Electric Power Authority*, Case No: CEPR-IN-2016-0002, November 15, 2016.

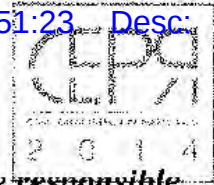


460. The Commission will assess these options, all described in the² Smith-Dady report at Part VI: monthly surveillance reporting, performance auditing of major capital projects, and appointment of an independent management auditor for major capital projects.

461. A key tool for performance improvement is exposure. In the directives below including requiring PREPA to submit reports on cost overruns. The Commission will place such reports on its website and require PREPA to do so. The Commission will also transmit the report to entities with an interest in PREPA's operations and costs, including PREPA's Board, the Legislature, the Governor, the PROMESA Oversight Board, and, of course, PREPA's bondholders. These reports will serve three purposes. First, they will induce PREPA's executives, managers and employees to prevent unreasonable costs. Second, they will provide PREPA, the Commission and others with information, insights and recommendations. Third, they will enable public officials and investors to make informed decisions about PREPA and its future.

IV. Directives

- A. *PREPA shall improve its bookkeeping, record keeping, and auditing practices so that PREPA management and the Commission have meaningful, timely, and reliable cost information.***
- B. *PREPA shall submit an annual report comparing historical budget forecasts to actual expenditures, along with lessons learned for future forecasting purposes.***
- C. *PREPA shall use the most recent, Commission-approved IRP as the basis for the budget forecast.***
- D. *For any major new capital projects (to be defined by the Commission) included in a budget forecast, PREPA shall provide a third-party based estimate.***
- E. *For each cost-overrun deemed unreasonable by the Commission, PREPA shall provide an analysis containing at least the following elements:***
 - 1. *A summary of the process used by PREPA to forecast the budgets that were exceeded.***
 - 2. *A summary of the actions PREPA took to contain expenditures within forecasted budgets.***
 - 3. *A description of actions that PREPA will take to avoid budget overruns in the future.***



4. *A description of the departments within PREPA that are responsible for the budget forecasts and the operational and capital expenditures.*
5. *The names and positions of the PREPA executives and department heads that are responsible for the budget forecasts and the operational and capital expenditures*



PART FIVE: The Corporate Structure of PREPA

I. Description of PREPA Holdings, LLC

462. PREPA's enabling legislation authorizes it to create subsidiary corporations directly related to the "maximization of the Authority's electrical infrastructure." Specifically, PREPA may

create, in Puerto Rico or abroad, companies, entities, or subsidiary corporations, for profit or nonprofit, affiliated or associated, for purposes, among others, of developing, financing, building and operating industrial projects and other infrastructure directly related to the maximization of the Authority's electrical infrastructure, and acquiring, having and disposing of value and participation, contracts, bonds or other interests in other companies, entities or corporations, and exercising each and every power and right that such interest allows, provided that, in the Board's judgment, such act be necessary, appropriate or convenient to reach the Authority's purposes or to exercise its powers, and to sell, lease, grant or in any other way convey any property of such Authority or to delegate or transfer any of its rights, powers, functions or duties, to any of said companies, entities or corporations that are subject to its total or partial control, except the right to begin expropriation procedures. The above shall take place without detriment to the functions that other public corporations or government agencies of the Commonwealth of Puerto Rico currently have.³¹⁷

463. Under this authority, PREPA formed PREPA Holdings in 2009 as a wholly-owned subsidiary. PREPA Holdings is a limited liability company which in turn owns three other subsidiaries. PREPA has described these entities as follows:

1. PREPA Networks, LLC invests, develops, finances, constructs and operates new generation fiber optics for PREPA within and outside Puerto Rico. The Company provides wholesale telecommunications services and markets the excess communications capacity of PREPA's fiber optic cable system.
2. Consolidated Telecom of Puerto Rico, LLC invests, develops, finances, constructs and operates new generation fiber optics for PREPA. This company also provides enterprise (retail) telecommunications services.

³¹⁷ 22 L.P.R.A. sec. 196 (v).



3. InterAmerican Energy Sources, LLC invests, develops, finances, constructs and operates renewable and non-renewable energy power projects and other electric utility services and infrastructure, such as but not limited to the generation, purchase, sale and distribution of photovoltaic solar-thermal, wind, waste-to-energy, oil, gas and petroleum distillates within and outside the Commonwealth of Puerto Rico in connection with the operation of PREPA.

464. PREPA Holdings has no operations of its own. It is the sole owner of PREPA Networks and InterAmerican Energy Sources. Consolidated Telecom of Puerto Rico is a subsidiary of PREPA Networks. PREPA Networks has a 51% membership (ownership) interest in Consolidated Telecom; PREPA Holdings has the remaining 49% membership interest.³¹⁸ PREPA Networks has 50 employees; its subsidiary, Consolidated Telecom, has 8 employees. InterAmerican Energy Sources has no employees and is not currently operating.³¹⁹ The three subsidiaries of PREPA Holdings are housed outside of PREPA (*i.e.*, not in buildings owned or occupied by PREPA).

465. Relative to PREPA, PREPA Holdings is very small. Its consolidated assets total approximately \$53 million, only 0.5% of the total asset value of its parent. The three subsidiaries in 2014 had a positive net position of about \$20 million.³²⁰

II. Benefits and risks of the current corporate structure

466. When a monopoly utility has affiliates, concerns arise in the following categories: effects on the utility's finances, effects on the utility's customers, and effects on the utility's competitors.

A. Finances

467. According to Commission Consultant Hill, a limited liability company structure implies that the debts undertaken by the subsidiary are non-recourse to the parent companies (PREPA Holdings and, ultimately, PREPA). Under that structure, debt issued by each PREPA Holdings subsidiary should be secured by that subsidiary's assets and income stream, not by the assets or income stream of the parent.

468. Because of the subsidiaries' small size relative to PREPA, their effects (positive or negative) on PREPA's financial condition will be infinitesimal—provided the subsidiaries remain at their present size. If, however, any one of those companies undertakes a

³¹⁸ SGH-02-08 (g)(ii) at 56. Commission's Fourth Request of Information (July 15, 2016).

³¹⁹ SGH-01-38 (t) at 42. Commission's Second Request of Information (June 23, 2016).

³²⁰ PREPA's 2014 Annual Report at 36 (PREPA Ex. I-2).



substantial expansion or a large construction project and requires a significant capital infusion, the risk of financial harm to PREPA rises. Mr. Hill asserted that it was reasonable to assume that in the event of any significant debt issuance by a subsidiary of PREPA Holdings and a subsequent business failure of that subsidiary, the lenders would seek recourse from PREPA regardless of their non-recourse position.

469. On the benefit side, Mr. Ramos, PREPA's Chief Financial Officer ("CFO") asserted that when PREPA contracts with the subsidiaries, it benefits from their PREPA experience. He added that because those vendors are wholly-owned by PREPA, their earnings stay within the PREPA family.³²¹

B. Customers and competitors

470. Whenever a monopoly company affiliates with a competitive company there is a risk of cross-subsidies. In the context of an inter-affiliate transaction, a cross-subsidy occurs when the price paid by the affiliate for the utility's service is below market price, or the price paid by the utility for the affiliate's service is higher than the utility's own cost or the market price. Cross-subsidies can also arise from resource transfers, such as if assets, personnel or technology is developed by the utility (or affiliate) and transferred to the affiliate (or utility) at less (or more) than market value (or cost, whichever is the relevant benchmark). Also, in the utility ratemaking process the affiliate's overhead is over-allocated to the utility or the utility's overhead is under-allocated to the affiliate, ratepayers subsidize competitive affiliates—to their own detriment and to the detriment of the utility's unaffiliated competitors.

471. Mr. Hill identified several examples. He said that the prices PREPA Networks was paying PREPA for capacity on PREPA's fiber optic cable might be lower than market prices, at least for urban areas, thus disadvantaging PREPA's customers as well as unaffiliated competitors of PREPA Networks. He also pointed out that PREPA paid PREPA Networks approximately \$500,000 for 60 mobile radios (July 2015), without evidence of competitive bidding.

472. PREPA witnesses claimed that pricing in the inter-affiliate transactions was benchmarked against competitive prices. But those prices could have been different had there been transparent, head-to-head competition to provide the services at issue.

473. Mr. Ramos argued that doing business with PREPA Networks benefits PREPA because its affiliate is familiar with PREPA's needs. But that argument ignores the fact that other companies, if given the chance, could develop the same familiarity. It is especially

³²¹ Response to SGH-03-02 at 16. Commission's Eight Request of Information (August 19, 2016).



concerning that, as we learned at the technical hearing, PREPA has no "code of conduct" rules for inter-affiliate interactions that prevent consumer harm and unearned competitive advantage. Such codes are standard fare in other jurisdictions.

474. The Commission also learned that InterAmerican intends to develop and finance energy power sources related to solar and other green energy generation methods. Its affiliation with PREPA, the primary energy provider in Puerto Rico, would give it name recognition—a competitive advantage not attributable to InterAmerican's merits. Puerto Rico needs to focus on attracting renewable energy competitors. Allowing entry by an affiliate of a monopoly utility does not help that cause.

C. The underwater transmission cable

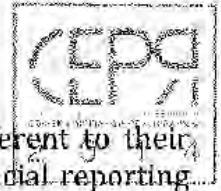
475. InterAmerican Energy presented another complication. In 2015 it was planning to develop and own an underwater transmission cable to interconnect the electric power systems on the islands of Puerto Rico and St. Thomas, U.S. Virgin Islands.³²² In its submission to FERC, InterAmerican stated that either InterAmerican or PREPA would provide transmission service over the line and that, initially, power would flow from Puerto Rico to St. Thomas from an interconnection at PREPA's Fajardo Substation.

476. It is odd that in the middle of its financial crisis, PREPA would consider investing in an expensive and risky project, one requiring hundreds of millions of dollars in capital that PREPA itself cannot raise. The venture raises all the classic problems: the risk of angry investors seeking recourse to PREPA if the project fails, the risk of PREPA's customers being charged for the venture's costs while not being compensated for the benefits PREPA provides, and the risk that PREPA's preferred relationship with InterAmerican would deter others from competing for this opportunity. However, as PREPA's witnesses made clear at the technical hearing, this project is going nowhere. Nevertheless, PREPA needs to focus on its customers and leave such ventures to entities that could be in a better position to undertake this type of projects.

III. Open questions

477. Mr. Ramos has asserted that each subsidiary operates independently of the others and of PREPA. This assertion is not consistent with the facts. Each subsidiary has business relationships with PREPA that cannot be described as arms-length because they did not arise from competitive bidding, and are not disciplined by a code of conduct or by any regulatory review. The telecom entities lease fiber capacity from PREPA, PREPA uses their services, and PREPA provides construction services to them. The Executive Director of

³²² The basic facts are in InterAmerican's 2015 filing before the Federal Energy Regulatory Commission (FERC) in Docket No. EL15-24-000. See FERC Order Granting Petition for Declaratory Order (Feb. 15, 2015).



PREPA sits on the Board of some of the subsidiaries. He cannot be indifferent to their performance. Indeed, PREPA Holdings is consolidated with PREPA for financial reporting purposes. Based on these facts, the claim of "independence" is not credible.

478. What is missing is transparency: the Commission's ability to see the details of the operations and cash flows of the subsidiaries, including how those operations and cash flows affect PREPA, its customers and competitors. Mr. Hill explained that his "[r]epeated attempts [...] to obtain basic annual financial information regarding the subsidiaries of PREPA Holdings (income statements, balance sheets, cash flow statements) [...] were unsuccessful."³²³ PREPA did supply consolidated financial data for one year and some data regarding charges to PREPA by the PREPA Holdings companies, but it never supplied annual historical financial data for each of the subsidiaries of PREPA Holdings as requested.³²⁴

479. Mr. Ramos asserted that PREPA has no control of the income statements, cash flow statements, and balance sheets of any of the PREPA Holdings subsidiaries.³²⁵ This statement is not credible. PREPA is the sole shareholder of the company that owns these companies. PREPA has control. It has the power to direct its subsidiaries to take the actions PREPA wants—or not to.

480. Mr. Ramos acknowledged that "[i]t is difficult to quantify the added value PREPA receives from its subsidiaries [...]"³²⁶ Given that fact, we wonder why it is necessary to subject PREPA, its customers and its competitors to the afore-described risks. This rate case, with its focus on a \$3.5 billion revenue requirement, is not the ideal place to assess fully the costs and benefits of PREPA Holdings. The upcoming performance investigation is. There the Commission will assess the benefits and detriments to Puerto Rico of having its distressed utility involved in businesses that have little to do with PREPA's service obligations. Until we conduct that analysis, PREPA and its affiliates shall comply with the directives described next.

IV. Directives

- A. *PREPA shall provide annually, consistent with a schedule to be determined by the Commission, (a) access to all operating and financial records of each***

³²³ Hill Report at 47.

³²⁴ CEPR-SGH-01-038 at 42. Commission's Second Request of Information (June 23, 2016), CEPR-SGH-02-08 at 56. Commission's Fourth Request of Information (July 15, 2016) and CEPR-SGH-03-01 through 06. Commission's Eight Request of Information (August 19, 2016).

³²⁵ Response to SGH-03-01 at 3. Commission's Eight Request of Information (August 19, 2016).

³²⁶ PREPA Response to CEPR-SGH-03-02 at 16. Commission's Eight Request of Information (August 19, 2016).



of PREPA Holdings' subsidiaries; and (b) a list and description of all inter-affiliate transactions to which PREPA is a party.

- B. PREPA shall create no new direct or indirect affiliates, nor inject further equity into or loan further money to, any direct or indirect affiliate, without informing the Commission at least 30 days before such action is to be taken. Such request for permission shall include a business plan, and financial and economic analyses demonstrating how the new business will bring benefits to Puerto Rico without causing harm to consumers or competition.*
- C. PREPA shall propose to the Commission a code of conduct that ensures, to the extent feasible, that affiliate relationships cause PREPA's customers no extra cost and cause PREPA's competitors no unfair disadvantage. Such code of conduct shall reflect the "state of the art" in protecting customers and competitors from harm.*
- D. Under no circumstances shall PREPA (a) guarantee any debt of the subsidiaries, (b) allow its assets or revenue to become security for any debt incurred by the subsidiaries, or (c) in any way become financially responsible for any commitments undertaken by the subsidiaries.*
- E. Until further notice, PREPA shall provide no resources or assistance to, or receive resources or assistance from, any affiliate whose business activities include competing to provide renewable energy facilities. PREPA shall disclose all such resources or assistance that have been provided to date.*



Findings of Fact³²⁷

Part Two – The FY2017 Revenue Requirement

1. The FY2014 data for the test year was "stale" and "unrepresentative" of the costs underlying a FY2017 revenue requirement.
2. The problems with the data were inevitable given the multi-year gap between the FY2014 audited results and the FY2017 rate year.
3. PREPA's consultants used a test year of FY2014, because it was the most recent 12 months for which audited information was available.
4. PREPA's financial condition is not stable.
5. Because PREPA's weak financial condition, lenders are not willing to make long-term loans.
6. The only source of funds for PREPA, for long-term capital expenditures, are today's customers.
7. In each major area of PREPA's budgets dropped from FY2010 to 2016, and especially sharply between FY2014 and FY2015.
8. Non-labor spending on every area, except A&G, has declined by 28% since FY2010.
9. Beginning in FY2014 PREPA has been underspending its already-reduced budgets.
10. PREPA's operational spending has been based not on actual needs but on overall ceilings rooted in political concerns about rate increases.
11. The effects of T&D work force reduction have been significant on transmission and distribution system maintenance. These effects have been exacerbated by a shortage of funds necessary to execute a well-planned preventative maintenance program.
12. Work force reduction has caused the reassignment of multiple construction crews to focus on reactive maintenance instead of preventative maintenance and new construction causing a steady decline in transmission and distribution system maintenance and performance across key performance indicators including CAIDI since 2014.

³²⁷ The Findings of Fact listed in this section have the purpose of summarizing many of the findings made by the Commission in support of its determinations in this Final Resolution and Order. It is not intended to be a complete or exhaustive list of all the findings made in this Final Resolution and Order.



13. PREPA's spending on Administrative and General operations has been increasing.
14. PREPA's spending last year on miscellaneous A&G related expenses was more than its entire proposed budget for generation expenses in FY2017.
15. Instead of allocating dollars according to the activities and costs of each area, PREPA's consultants simply allocated to each area that percentage of the proposed FY2017 total that matched its fraction of the FY2014 total.
16. PREPA's consultants acknowledged that their method may not relate in any way to PREPA's actual budgeting process.
17. PREPA does in fact have a bottom-up, by-directorate operations expense budget for FY2017, independent of its by-area allocation of operational expenses in the revenue requirement. PREPA did not disclose this budget to the Commission or its consultants prior to the Technical Hearing.
18. The by-area operations expense allocations proposed by PREPA are disconnected from PREPA's actual operations budget.
19. PREPA routinely reallocates funds during the year depending on changing circumstances.
20. PREPA's performance improvement initiatives are in many cases still experimental in nature.
21. PREPA is having difficulty managing its workforce.
22. PREPA is an inefficient bureaucracy with high absenteeism, has an unacceptable safety record, is overly staffed with non-value-added administrative personnel, especially in the executive directorate, and has an oversized executive team.
23. PREPA has a shortage of technical expertise.
24. PREPA has been incurring hundreds of thousands of dollars in fines for environmental non-compliance.
25. PREPA pays for the energy AES produces and the dependable capacity it provides. PREPA also compensates AES for its startup-related costs after any unit shutdown requested by PREPA.
26. PREPA's energy payment to AES has two components: a fuel pass-through, and a charge for variable operations and maintenance costs. The per-kWh energy price is fixed every year, subject to a guarantee from PREPA that the unit will be dispatched at



a capacity factor of at least 50%. The capacity price reflects AES's capitals costs and its fixed operations and maintenance costs.

27. PREPA's contract with EcoEléctrica includes a capacity payment and a base energy charge. PREPA pays charges for unit start-up if PREPA requested the preceding shut-down. The EcoEléctrica contract also requires an "excess energy payment" for energy required above a 76% capacity factor. These factors make it difficult for PREPA to predict its payments to EcoEléctrica.
28. In recent years, PREPA has based its capital budget on a compromise between the system's actual needs and a desire to avoid any rate increase.
29. There has been no base rate increase since 1989.
30. PREPA needs to improve its budgeting process.
31. The information provided by PREPA as part of its responses to requests for information was often insufficient.
32. PREPA could not provide sufficient documentation explaining a project, justifying its expense, how the estimate was generated, or even the project's value to customers.
33. PREPA's largest units are not reliable.
34. PREPA's total anticipated spending at the Aguirre Steam Units, averaging \$16/kW from 2017-2019, are in line with "run-rate" capital dollars budgeted for steam coal units at other utilities.
35. PREPA did not provide forced outage records or estimates for the Aguirre Combined Cycle units.
36. The Alstom contract should be treated as operations and maintenance (O&M) expense rather than a capital cost.
37. PREPA's goals in pursuing smart-grid technology are similar to those of other utilities installing smart grid.
38. With regards to using PREPA Network, PREPA should have used competitive bidding to select the best provider.
39. The Irrigation District arrangement is inefficient and illogical.
40. PREPA's contractual obligation to pay the interest and principal due on the legacy debt remains.



41. While the Commission has authority to approve future debt, it has no authority to adjust the outcome of the PREPA-bondholder negotiations.
42. PREPA's forecast for FY2017 was acceptable.
43. PREPA and its bondholders should not eliminate the role of Consulting Engineer.

Part Three – Revenue Allocation and Rate Design

1. Because PREPA does not have a continuing load-research program, it had to develop load shapes through other means.
2. PREPA did not have information with which to determine various customer classes' contribution to system peak load.
3. PREPA used allocators based on estimates of class non-coincident peak load.
4. PREPA did not have non-coincident peak data for each customer class for any recent year, so it combined data on load shapes from as early as FY2009 and as late as FY 2014, depending on the tariff code.
5. PREPA's estimates of class demand allocators do not represent the load characteristics that drive PREPA's costs.
6. PREPA's proposed revenue allocation deviates markedly from its COSS.
7. PREPA's marginal cost study is deficient.
8. The fixed customer charge for the GRS class proposed by PREPA is overstated.
9. A \$4.00 customer charge is justified by marginal cost considerations.
10. PREPA's marginal cost study had estimates of marginal energy costs that were lower than PREPA's self-reported FY2016 production costs.
11. PREPA's estimates reflected fuel costs much lower than those estimated by Drs. Fisher and Horowitz.
12. PREPA's estimates did not account for the fact, for plants which are operating all month, the costs necessary to raise those plants' production would be lower than normal.
13. PREPA used an average of the hourly marginal costs, rather than a weighted average of hourly prices reflecting the higher marginal costs in higher-load hours.
14. PREPA's fuel discount is overly complicated and needs to be simplified.



15. PREPA currently recovers all of its fuel costs and purchased-power costs through separate but similar Fuel Cost Adjustment (FCA) and Purchased-Power Cost Adjustment (PPCA) cost riders. Most other costs are recovered through base rates.
16. CILT and subsidies are currently recovered through the FCA and PPCA by means of a "gross-up" produced by dividing the adjustment revenues by 0.89 (which is equivalent to adding about 12.36% to fuel and purchased-power costs).
17. The levels of subsidies related expenses and discounts do not vary with fuel and purchased-power costs.

Part Four – Procedures for Establishing Revenue Requirements After FY2017

1. The Commission must design a procedure for financial discipline that, rather than blocking recovery of imprudent costs already incurred, instead prevent imprudent costs from being incurred.
2. PREPA proposed something called a Formula Rate Mechanism (FRM).
3. The primary difference between FRM and traditional ratemaking is how each treats previously incurred costs. If revenues are insufficient to cover actual costs, customer make up the difference. If revenues exceed actual costs, customers get a refund.
4. PREPA's proposal is more likely to burden customers with PREPA's imprudent costs rather than prevent PREPA from incurring imprudent costs.
5. After a fiscal year ends, some type of after-the-fact-reconciliation will be necessary because actual events will deviate from projections.
6. PREPA's rate-setting procedure and its budgeting procedures are not synchronized.
7. The Commission lacks sufficient information to set a revenue requirement for FY2018.

Part Five – The Corporate Structure of PREPA

1. PREPA has no "code of conduct"—rules for inter-affiliate interactions that prevent consumer harm and unearned competitive advantage.
2. Each subsidiary has business relationships with PREPA that cannot be described as arms-length because they did not arise from competitive bidding, and are not disciplined by a code of conduct or by any regulatory review.
3. PREPA Holdings is consolidated with PREPA for financial reporting purposes.



4. The claim of "independence" between PREPA and its subsidiaries is not credible.
5. PREPA is the sole shareholder of the company that owns these subsidiaries. PREPA has control. It has the power to direct its subsidiaries to take the actions PREPA wants—or not to.

* * *



Conclusions of Law³²⁸

1. Act 57-2014 established procedures and standards for evaluating and establishing electric rates to be charged by PREPA.
2. The Commission is the entity created by Act 57-2014 to regulate and oversee PREPA's operations and performance and review its rates.
3. Act 57-2014 grants the Commission ample discretion in adopting the necessary determinations to ensure a safe and reliable electric service at reasonable prices.
4. Section 6.25(a) requires PREPA's rate to be "just and reasonable and consistent with sound fiscal and operational practices which result in a reliable service at the lowest reasonable cost."
5. The Commission approved Regulation 8720, establishing the information requirements with which PREPA must comply when it submits an application for new rates.
6. Section 6.25(d) of Act 57-2014 grants the Commission discretion to, within 30 days from the date on which a petition for new rates is filed, approve a Provisional Rate.
7. Section 6.25(f) requires the Commission to complete its review of PREPA's proposed rates within 180 days from the date PREPA's request is deemed to be complete.
8. If the Commission fails to make a final determination within said 180 days, the rate proposed by PREPA is deemed approved as a matter of law.
9. Act 57-2014 requires PREPA's rates must: (i) "[be] sufficient to guarantee payment of principal, interest, reserves, and all other requirements of bonds and other financial obligations that have not been defeased as part of the securitization provided in Chapter IV of the Electric Power Authority Revitalization Act, and reasonable costs of providing the services of the Authority; (ii) complies with the terms and provisions of the agreements entered into with or in benefit of buyers or holders of any bonds or other financial obligations of the Authority; (iii) covers the costs of the contribution in lieu of taxes and other contributions and subsidies required to the Authority under special laws; (iv) remains in effect during three (3)- year cycles at least, except for periodic adjustments authorized by the Commission as part of the rate approved, and unless the Commission *motu proprio* decides to conduct a review; (v) takes into

³²⁸ The Conclusion of Law listed in this section have the purpose of summarizing many of the findings made by the Commission in support of its determinations in this Final Resolution and Order. It is not intended to be a complete or exhaustive list of all conclusions reached in this Final Resolution and Order.



consideration the operational and administrative efficiencies and savings provided in the Creditors' Agreement as reasonably."

10. The revenue requirement, and the rates approved to recover such revenue requirement, approved in this Final Resolution and Order complies with the requirements set forth in Act 57-2014.
11. Act 57-2014 does not give the Commission discretion to judge the reasonableness of the CILT and subsidies.
12. PREPA's enabling legislation authorizes it to create subsidiary corporations directly related to the "maximization of the Authority's electrical infrastructure.
13. The Commission has the statutory authority to require PREPA to provide information regarding its subsidiaries.
14. A central principle of just and reasonable ratemaking, economic efficiency and equity is that costs should be borne by those who cause them.
15. A cost-of-service study does not place a constraint on the Commission's discretion in allocating revenue responsibility.
16. Act 57-2014 provides that the FCA and PPCA rides may "only include costs directly related to the purchase of fuel and energy."
17. Act 22-2016 grants certain low-income customers a fixed electric service rate for a specified block of energy consumption.
18. Grandfathered net-metering customers shall pay charges approved under Section 4 of Act 114-2007 on their net inflow (after receiving a credit for their outflow).
19. Non-grandfathered net-metering customer shall pay charges approved under Act 114-2007 based on their total inflow from PREPA.
20. The charges approved in this Final Resolution and Order under Section 4 of Act 114-2007 are just, are designed to recover costs related to grid services received by net-metering customers, are not excessive and do not represent an obstacle to the development of renewable energy projects.
21. Act 50-2013 does not constrain the Commission's discretion in approving rate applicable to the Puerto Rico Aqueduct and Sewer Authority.
22. The Commission is not required, either by Act 57-2014 or by the Restructuring Support Agreement, to approve the Formula Rate Mechanism proposed by PREPA in its filing.



23. Act 57-2014 does not require the Commission to approve a customer-specific mechanism for calculating the amount to be credited or charges to PREPA's customers to reconcile the Provisional Rate with the permanent rates approved.

* * *



List of Commission Directives

1. PREPA shall use the Modified DSCR ratemaking model for purposes of determining PREPA's base rate revenue requirement. This requirement shall apply for FY2017, and for future fiscal years until the Commission finds that PREPA has access to external debt financing on reasonable terms. Once PREPA has regained access to the capital markets on reasonable terms, the Commission will require PREPA to use the DSCR-based ratemaking methodology, under which capital expenditures incurred in a particular year are recovered ratably over the life of the equipment or asset funded by those expenditures.
2. While using the Modified DSCR approach, PREPA shall account for the ratepayer funding of PREPA's capital expenditures as contribution in aid of construction.
3. Operating and maintenance (O&M) expenses include standard repairs and maintenance required to keep an asset in operational condition. These types of repairs shall be accounted for in the period incurred—i.e., expensed in a maintenance category. This category shall include repairs that may last more than a year, but shorter than a full maintenance cycle.
4. PREPA has not properly maintained its generation facilities in FY2015 or FY2016. PREPA shall increase its FY2017 Generation Expense of \$9.680 million for Labor and \$4.495 for non-Labor, for a total FY2017 Generation Expense increase of \$14.175 million.
5. PREPA shall reclassify the contracts listed in Attachment 3, page 2-3, totaling \$16 million from Capital Expenditure to Generation Expense.
6. PREPA has not properly maintained its transmission facilities in FY2015 or FY2016. PREPA shall increase its FY2017 Transmission Expense of \$3.330 million for Labor and \$479,000 for non-Labor, for a total FY2017 Transmission Expense increase of \$3.809 million.
7. PREPA has not properly maintained its distribution facilities, PREPA shall increase its FY2017 Distribution Expense by \$16.115 million for Labor and \$2.372 million for non-Labor, for a total FY2017 Distribution Expense increase of \$18.487 million.
8. There shall be no change to PREPA's proposed FY2017 customer service amount.
9. The revenue requirement for bad debt expense shall be \$97.384 million, resulting from multiplying PREPA's estimated uncollectibles rate of 2.97% by the full amount of PREPA's proposed expenses (as adjusted by the Commission).
10. PREPA shall decrease A&G labor expense by \$17.057 million.



11. PREPA shall develop and submit to the Commission a revised monthly report format, providing for greater detail on PREPA's operational budgets, organized by functional area.
12. PREPA shall provide detailed information on the spending within the "miscellaneous" non-labor segment of the Administrative and General functional area. Such information shall distinguish between funds spent to date and funds not yet spent.
13. PREPA shall account for fines and penalties in the proper account; specifically, FERC account 426.3.
14. PREPA shall verify that it has not included in its proposed revenue requirement any amounts for fines and penalties.
15. PREPA shall submit to the Commission a full explanation of the causes of fines and penalties from FY2013 to the present, including the names and titles of specific individuals whose actions or inactions contributed to the violations that triggered the penalties.
16. If PREPA incurs fines and penalties for FY2017 or future years, it shall explain to the Commission the nature of these costs and the specific individuals responsible for the actions or inactions causing the fines or penalties. PREPA also shall submit to the Commission a plan for complying with all rules so as to avoid future fines and penalties.
17. PREPA shall continue its policy, per the Consent Decree discussed in its FY2014 audited financial statement, of paying the stipulated penalty in advance to benefit from a 50% discount.
18. PREPA shall provide updates concerning the appraised value of PREPA's unused property (i.e., property not needed to provide utility service), as well as PREPA's plans for maximizing the value of such properties.
19. PREPA shall adjust its monthly report format to list monthly and year-to-date actual spending and budgeted values by labor and non-labor expenses in the same functional areas used herein. These reports shall include the total annual budgets and percent of budgets spent in the past month and year-to-date.
20. PREPA shall prepare a report, to be submitted with its next rate case filing, regarding its use (or lack thereof) of the additional \$19.4 million of operational expenses allowed by the Commission (per Attachment 3, page 6) and the effect of that spending on its system.
21. PREPA shall continue to record its monthly operations spending by directorate. When PREPA reallocates funds between directorates, it shall memorialize and justify such reallocations in written form.

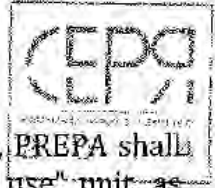


22. PREPA shall prepare a report, to be submitted with its next rate case filing, ~~that shall~~ include its as-approved internal operations expense budget by directorate, its actual monthly operations spending by directorate, and a listing of these memorialized reallocations and the justifications thereof.
23. PREPA shall increase its FY2017 fuels budget (and its revenue requirement) by \$461,305,000, for a total FY2017 fuel budget of \$1,117,273,000.
24. As presented in its filing on Schedule A-6, PREPA proposed to include the following costs in the Fuel Adjustor: fuels (residual, distillate, natural gas, propane, additives), transportation, inspection, laboratories, storage, handling, delay, taxes, and hedging. PREPA has not incurred Fuel Expense for Additives in the last three fiscal years through FY2016. Nor has it incurred expense for Delays or Fuel Hedging in the last two fiscal years (FY2015 and FY2016). Before incurring such costs in the future, PREPA shall submit to the Commission a request for approval, containing the proposed amount and a justification, and await approval. All other categories of Fuel Expense proposed by PREPA shall be included in its revenue requirement.
25. In the upcoming performance proceeding, the Commission will require PREPA to recommend to the Commission at least three firms to conduct a management performance review specifically relating to fuel purchase costs. These firms may be the same firms recommended for the purchased power review discussed below. The Commission will select one firm, which shall contract with PREPA to conduct the review under specifications established by the Commission. Such review shall contain, without limitation, a recommendation regarding procedures for periodic audits of PREPA's fuel procurement, to ensure that such costs are reasonable and accounted for properly.
26. PREPA shall prepare fuel price forecasts at least semi-annually, submit them to the Commission and post them on its web site.
27. There are no adjustments to PREPA's projected FY2017 Purchased Power Expense.
28. In the upcoming performance proceeding, the Commission will require PREPA to recommend to the Commission at least three firms to conduct a management performance review specifically relating to purchased power. These firms may be the same firms recommended for the fuel cost review. The Commission will select one firm, which shall contract with PREPA to conduct the review under specifications established by the Commission. Such review shall contain, without limitation, a recommendation regarding procedures for periodic audits of PREPA's power purchases, to ensure that such costs are reasonable and accounted for properly.
29. Consistent with the requirement in our IRP Order, PREPA shall establish and update semiannually a database of its renewable energy contracts, for all projects whether or not operational. This database shall include the names, owners, contract numbers,



initial energy costs, current energy costs, initial REC costs, current REC costs, any relevant escalators, and expected and actual on-line dates. The format used in response to CEPR-AII-03-02 is acceptable but not binding.

30. The FY2017 revenue requirement shall include the full proposed capital spending at Aguirre, Costa Sur 5 & 6, Palo Seco, and San Juan Steam Plants, as well as the \$600,000 FY2017 improvements at Mayagüez.
31. PREPA shall remove the maintenance contract at San Juan CC from the capital budget and reassigned it as an annual maintenance expense, a reassignment of \$12 million in FY2017 from capital to O&M. PREPA shall remove the cost of the Cambalache maintenance contract from the capital budget and reassign it as an annual maintenance expense—a reassignment of \$4 million in FY2017 from capital to O&M. Attachment 1 shows increased PREPA's Generation Expense by \$16 million, as discussed above.
32. PREPA shall track capital expenses associated with each generating unit designated as "limited use." Such tracking shall be performed for each individual unit. To the extent capital expenditures at a plant site are not separable by unit, PREPA shall associate those expenditures in the tracking record by the units that benefit from the capital or, if applicable, designate an expenditure as "whole plant." In addition to, or as part of this tracking, PREPA shall:
 - a. submit periodic reports on capital projects at Palo Seco 1 & 2, regardless of whether these units are designated "limited use."
 - b. submit periodic reports on capital projects at San Juan 7-10, regardless of whether these units are deemed "limited use."
 - c. submit periodic reports on capital projects at Costa Sur 3 & 4, regardless of whether these units are deemed "limited use."
33. PREPA shall submit strategic plans for the San Juan and Palo Seco steam plants, including the following elements, at a minimum: maintenance plan, MATS compliance plan, and an investment plan for maintaining or retiring San Juan 7-10 and Palo Seco 1 & 2. These plans shall be informed by a reliability study, assessing what strains are placed on the generation and transmission system in the presence or absence of the San Juan or the Palo Seco steam units.
34. PREPA's long-term modeling, including for integrated resource planning, shall consistently assess whether each generating unit designated as "limited use" is available for reliability purposes; and if not, assess the value of maintaining units that neither contribute to peak purposes nor provide energy to the system.



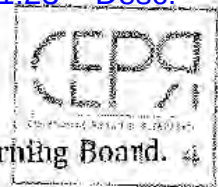
35. In its next submission within the integrated resource planning process, PREPA shall assess the economic value to ratepayers of maintaining each "limited use" unit, as compared to retiring such unit.
36. In the upcoming performance proceeding, the Commission shall consider whether to require PREPA submit to the Commission at least three qualified consultants, one of which the Commission will select and retain, to:
- a. examine the maintenance contract at San Juan combined cycle plants and the performance of MHPS-PR to determine if the contractor is meeting performance expectations for maintenance service.
 - b. examine the Cambalache contract and the performance of Alstom to determine if the contractor is meeting performance expectations for maintenance service at Cambalache.
37. PREPA shall submit for Commission approval, prior to its execution, any long-term contract with service providers with a potential net present value of \$25 million or higher.
38. PREPA shall submit a summary of the expenditures necessitated by the fire and outage occurring in September 2016.
39. Consistent with the IRP Order, PREPA shall limit spending on AOGP to \$15 million, reducing FY2017 revenue requirements by \$41,340,000.
40. PREPA shall not sign a Limited Notice to Proceed or a Final Notice to Proceed at AOGP until it has submitted, and the Commission has approved, the AOGP Economic Analysis; or until the Commission resolves the Reconsideration under review. PREPA shall make no other commitments to incur future costs relating to AOGP without submitting a request and documentation to the Commission. If the Commission approves AOGP, PREPA may request an increase in the revenue requirement.
41. The Commission recognizes, as the Fisher-Horowitz Report says, that "[s]talling projects, cancelling vendors, or missing contractual deadlines could result in increased costs, damages, or potential legal actions by vendors." PREPA shall alert the Commission promptly—and factually—if such possibilities become imminent realities.
42. If and when PREPA needs to incur additional costs for "alternative investments" (i.e., alternatives to AOGP), it shall first seek and obtain Commission approval.
43. Based on the information provided by PREPA and its examination and assessment in the Fisher-Horowitz Report, as well as the discussion at the technical hearing, the Commission approves the full FY2017 transmission system capital budget as requested by PREPA.



44. The Commission approves the full FY2017 distribution system capital budget as requested by PREPA. PREPA shall continue acquiring advanced meter reading ("AMR") meters unless a specific application requires advanced meter infrastructure ("AMI"). If PREPA wishes to acquire smart meters above the 30,000 already acquired without a specific technical application need, it shall submit a detailed business case describing and evaluating the costs and benefits of smart meter deployment. The business case should provide detail of the scope, scale and schedule of deployment, including but not limited to technological and financial issues. It should take into account the need for staff and consumer education for effective meter use.
45. PREPA should not commit to any greater expenditure than what is approved here, without approval of the Commission.
46. For future purchases of meters, PREPA shall use competitive bidding.
47. PREPA shall provide to the Commission a report describing its efforts to bill and collect from municipalities in regard to the consumption of electricity at for-profit businesses affiliated with such municipalities.
48. PREPA shall include in its FY2017 revenue requirement \$314 million for debt service principal and interest.
49. PREPA shall include a debt service coverage amount of approximately \$126 million, reflecting a debt service coverage ratio of 1.40 applied to the \$314 million in debt service.
50. PREPA shall inform the Commission monthly on its progress regarding financial restructuring, including its efforts to obtain an investment grade credit rating for the new debt to be issued by PREPARC, and its meetings with members of the PROMESA Oversight Board. PREPA shall submit to the Commission copies of any formal presentations that it (or PREPARC) makes to credit rating agencies or to the PROMESA Oversight Board.
51. PREPA shall use all reasonable efforts to persuade the PROMESA Oversight Board to provide the maximum debt service relief available, including demonstrating to that Board how the savings will benefit the Commonwealth's economy and its electricity consumers.
52. PREPA shall reflect a FY2017 amount of \$38.925 million in Other Income.
53. In future years, PREPA shall detail the basis for amounts included as Other Income.
54. PREPA shall develop a single, reliable, theoretically sound forecasting model for each rate class. Each model should be able to predict adequately historical sales.



55. PREPA shall develop a new sales forecast based on these models prior to submitting to the Commission another planning or rate case.
56. Any changes to PREPA's forecasting models in the future shall be clearly documented and supported by evidence.
57. In submissions relating to forecasts, PREPA shall provide clear, comprehensive, and accurate methodological documentation, including work-papers showing all relevant inputs and calculations, along with note sources for all assumptions and hard-coded values.
58. All forecasts shall explicitly account for energy efficiency, demand management and demand elasticity, by class and on a total system basis.
59. As part of its compliance filing, PREPA shall submit no later than February 15, 2017 for Commission review and approval, the computation and description of the actual permanent rate increase for each tariff code and the language it will include in each customer's bill explaining the increase.
60. As provided in Section 6A(f) of Act 83, PREPA's permanent rates shall enter into effect 60 days from the date of approval of this Final Resolution and Order.
61. The reconciliation of provisional rates with permanent rates shall commence when the permanent rates are in effect.
62. The reconciliation shall occur over the same amount of months that the provisional rates were in effect.
63. The reconciliation shall apply to the broad customer classes identified in Part Three-IA, rather than on a customer-specific basis. This approach will save the \$130,000 per month that PREPA has estimated would be required to reconcile per-customer.
64. Because of the small size of the difference between the provisional rates and the permanent rates, the reconciliation shall be done by adjusting the per-kWh charge, rather than by adjusting each element of a customer class's rate structure.
65. As part of its compliance filing, PREPA shall provide, no later than February 15, 2017, the following information: (i) the total amount (in dollars) to be credit to customers, (ii) the allocation among customer classes of the total amount to be credited, and (iii) the amount (in cents/kWh) to be credited to each customer class on every billing cycle.
66. PREPA shall take necessary steps to assure that its audited financial statements can be completed and made available on a timely basis.



67. PREPA shall submit to the Commission its Monthly Reports to the Governing Board. In addition, the report to the Commission will include the following:

- a. explain significant variances between (i) budgeted and actual data, and (ii) current and prior year data,
- b. provide information on Labor Costs, including how current month and year-to-date payroll, pensions, OPEBs and other employee benefit costs compare with prior year amounts and current year budgets,
- c. provide information on PREPA's actual debt service coverage ratio,
- d. provide information on the status of PREPA's financial restructuring, including significant events that have occurred during the reporting month.

68. PREPA shall allocate budgets for new initiatives and costs to specific functional areas, according to standards to be determined by the Commission.

69. As required by the Trust Indenture, PREPA shall retain a Consulting Engineer, different from the one previously engaged. Before recruiting the Consulting Engineer, PREPA shall submit to the Commission a description of the duties and the required qualifications. The Commission may comment on such description, but PREPA shall have full discretion to choose the Consulting Engineer. PREPA shall provide the Commission any information it requires about the functions, activities and reports of the Consulting Engineer.

70. PREPA shall allocate the allowed revenue increase in an equal cent-per-kWh basis with one exception.

71. Prior to computing the general cent-per-kWh increase referenced above, PREPA shall increase the PPBB revenue requirement by the average increase in the system revenue requirement, excluding the fuel, purchased-power and Transition Charge.

72. The remainder of the allowed revenue increase shall be divided by projected non-PPBB FY2017 sales to yield a general cent-per-kWh revenue increase rate.

73. The revenue allocation for each tariff shall be increased by the revenue increase rate times the projected sales for that tariff.

74. The fixed charge for non-subsidized GRS customers shall be raised to \$4.00, which is consistent with Mr. Chernick's recommendations. No other fixed charge shall be changed. The remainder of the revenue allocated to the GRS customers will therefore be recovered through the consumption (per kWh) charge. By making the decision to consume electricity more expensive, this approach will encourage more energy conservation and more renewable energy.



75. The Commission accepts Mr. Chernick's reasoning and his conclusion. PREPA shall maintain the existing cents/kWh differential in the GRS inclining block rate.
76. PREPA shall restructure the fuel discount for customers on the LRS, RH3 and GRS 111 tariffs, simplified as proposed in PREPA's filing, but modified so that the discount diminishes gradually over 425 kWh, rather than abruptly. The fuel discount shall be phased out from 425 kWh to 500 kWh.
77. The direct-debit discount shall remain as currently established, i.e., as a 10% discount on base rates, excluding all riders.
78. In the rate design proceeding, PREPA shall present a business case that describes the benefits and costs of this discount.
79. PREPA shall add the description of the direct debit discount to its tariff book.
80. PREPA shall not increase demand charges for any tariff other than PPBB (as described herein). The revenue increases assigned in this proceeding to the other tariffs with demand charges shall be recovered through PREPA's proposed customer charges and through increases in the per-kWh rates.
81. PREPA shall increase each component of the PPBB tariff by an equal percentage, computed to recover the revenue increase allocated to this class consistent with the Commission's determination above.
82. PREPA shall eliminate the ratchets and contract demands. They are unnecessarily complex and lacking in cost justification. With these changes, the demand-charge portion of the customer's bill shall be determined solely by the current month's 15-minute maximum demand.
83. This labor-intensive, deadline-driven rate case is a suboptimal time to make major changes in rate design, especially where the effects of those changes on various customers is not well-understood. PREPA shall retain Tariffs TOU-P and TOU-I without change in availability, and keep them open for new customers. PREPA shall eliminate the ratchets and contract charges from these tariffs, and increase the on- and off-peak energy charges in each tariff uniformly to recover the allocated revenue increase. We will address the issue of time-of-use rates in the upcoming rate design proceeding.
84. PREPA shall not initiate the economic development rate. The Commission does not currently have expertise in job development. The proposal does not address, among other things, the types of jobs or their longevity. Nor does the proposal address the Commission's ability to enforce the job creation requirement against a customer that fails to achieve that requirement. This Commission cares deeply about economic development, and will do all it can within its authority to stimulate it. But decisions of



this importance to Puerto Rico's future must be supported by more than vaguely defined riders. We will discuss this option more deeply in the upcoming rate design proceeding.

85. PREPA shall institute a tariff offering load-retention discounts where necessary to retain load. The discounts shall be subject to Commission advance review, not produce rates below marginal cost, shall be no greater than necessary, shall not encourage wasteful consumption, and shall not pose an obstacle to the development of economical renewable energy.
86. Negotiations between PREPA and customers seeking this discount shall (a) be guided by the foregoing principles and any others the Commission establishes, and (b) include representatives of ICPO to the extent ICPO wishes to participate. This requirement is not intended to exclude others.
87. PREPA shall increase each component of the public lighting and unmetered tariffs by an equal percentage, computed to recover the revenue increase allocated to this class consistent with the Commission's determination above. We will revisit these issues in the rate-design proceeding.
88. PREPA shall raise each reconnection charge to its cost level: \$50 for secondary customers and \$500 for primary customers, adjusting its revenue requirement accordingly. This change aligns the charge with PREPA's estimates of actual cost. Any future changes in fee schedules require Commission approval.
89. All fuel and purchased-power costs shall be collected through the riders, zero through base rates.
90. The riders shall be updated quarterly. PREPA shall include an acceleration provision that is triggered upon a finding by the Commission that the combined difference between projected costs and projected revenues for the FCA, PPCA and the energy-efficiency adjustment in the current quarter exceeds \$20 million.
91. PREPA shall correct all erroneous language in the draft riders and submit the revised language to the Commission for approval.
92. The Contribution in Lieu of Taxes (CILT) shall no longer be collected by PREPA via the 0.89 factor that had been in the denominator of its Fuel and Purchased Power Adjustors. Rather, CILT will be collected through a separate rider. The FY2017 CILT amount shall be \$51,783,821.
93. Customers in the RFR class shall be exempt from the CILT as applied to the fixed block consumption charge, but shall pay CILT for consumption exceeding the fixed block.
94. PREPA shall correct the erroneous language in the draft rider and submit the revised language to the Commission for approval.



customers' consumption, as explain below. RFR customers shall pay the ~~subsidy~~ charge only for their consumption above their fixed-price consumption block.

104. The subsidies rider shall be reconciled annually.
105. Future negotiations between the Irrigation District and its non-agriculture customers shall involve ICPO to the extent ICPO wishes to participate. This requirement is not intended to exclude others.
106. PREPA shall correct all erroneous language in the draft rider and submit the revised language to the Commission for approval.
107. PREPA shall charge net metering customers for inflow from PREPA's system at the normal rate for the tariff class.
108. PREPA shall credit non-grandfathered net metering customers for outflow at the sum of the customer's base rate energy charge; the fuel rider; the purchased-power rider; and the portion of the subsidy charge that covers Hotel Discount, Downtown Commerce, Churches analog, rural aqueducts, GAS, Condominium Common Areas, and irrigation district; and the Act 73 Tax credit.
109. PREPA shall credit grandfathered net metering customers for outflow at the sum of the customer's base rate energy charge; the fuel rider; the purchased-power rider; the energy-efficiency cost adjustment; the CILT rider; and the subsidy rider.
110. All credits should be applied on each monthly billing cycle. For the billing cycle closing in June of each year, seventy-five percent (75%) of any excess kWh credit accumulated by the net-metering customer during the previous year and which remains unused, shall be purchased by PREPA based on the applicable outflow credit for each customer. The remaining twenty-five percent (25%) shall be assigned to PREPA to be distributed in accordance with Section 5 of Act 114-2007.
111. PREPA shall provide the Commission with a monthly report of net metering applications, and actual connections, by number and capacity, and by tariff class.
112. PREPA shall improve its bookkeeping, record keeping, and auditing practices so that PREPA management and the Commission have meaningful, timely, and reliable cost information.
113. PREPA shall submit an annual report comparing historical budget forecasts to actual expenditures, along with lessons learned for future forecasting purposes.
114. PREPA shall use the most recent, Commission-approved IRP as the basis for the budget forecast.



95. Reconciliation of the CILT rider shall occur annually with each budget examination or three-year rate case filing, whichever applies.

96. The Commission will address the details of this rider when it determines energy efficiency programs, providers and budgets. For now, PREPA shall revise the rider to correct drafting errors and to provide for annual adjustment and reconciliation.

97. Based on legislative mandates and our interpretation of the term "subsidy," the following discounts and payments will be included in the subsidies charge:

- Life-Preserving Equipment
- RFR Tariff
- LRS Tariff
- RII3 Tariff
- Residential Fuel Subsidy
- Analog Rate
- General Agricultural Service
- Hotel 11% Discount
- Rural Aqueducts on GRS
- Downtown 10% Subsidy
- Condo Common Areas
- Act 73 Income Tax Credit
- Public Lighting
- Energy Commission Assessment
- Irrigation District Deficit

98. The FY2017 Subsidies amount shall be \$136,943,067.

99. The direct debit credit shall be removed from the subsidies line item because it will not be treated as a subsidy.

100. The non-recovery of certain costs from net-metering customers is not viewed by the Commission as a "subsidy" and therefore will not be recovered through the subsidies charge. It is a reduction in revenue, like the direct debit credit.

101. The economic-development rider is not approved at this time. The Commission will discuss it further with participants in the upcoming rate design proceeding.

102. As for the load-retention rider, the Commission will address the appropriateness of including any resulting reduction in revenues in the subsidy charge if and when it approves specific applications.

103. The only PREPA sales that will be exempt from the subsidy charge are the fixed blocks of the RFR tariff and some portions of the grandfathered net metering



115. For any major new capital projects (to be defined by the Commission) included in a budget forecast, PREPA shall provide a third-party based estimate.

For each cost-overrun deemed unreasonable by the Commission, PREPA shall provide an analysis containing at least the following elements:

1. A summary of the process used by PREPA to forecast the budgets that were exceeded.
 2. A summary of the actions PREPA took to contain expenditures within forecasted budgets.
 3. A description of actions that PREPA will take to avoid budget over-runs in the future.
 4. A description of the departments within PREPA that are responsible for the budget forecasts and the operational and capital expenditures.
 5. The names and positions of the PREPA executives and department heads that are responsible for the budget forecasts and the operational and capital expenditures.
116. PREPA shall provide annually, consistent with a schedule to be determined by the Commission, (a) access to all operating and financial records of each of PREPA Holdings' subsidiaries; and (b) a list and description of all inter-affiliate transactions to which PREPA is a party.
117. PREPA shall create no new direct or indirect affiliates, nor inject further equity into or loan further money to, any direct or indirect affiliate, without informing the Commission at least 30 days before such action is to be taken. Such request for permission shall include a business plan, and financial and economic analyses demonstrating how the new business will bring benefits to Puerto Rico without causing harm to consumers or competition.
118. PREPA shall propose to the Commission a code of conduct that ensures, to the extent feasible, that affiliate relationships cause PREPA's customers no extra cost and cause PREPA's competitors no unfair disadvantage. Such code of conduct shall reflect the "state of the art" in protecting customers and competitors from harm.
119. Under no circumstances shall PREPA (a) guarantee any debt of the subsidiaries, (b) allow its assets or revenue to become security for any debt incurred by the subsidiaries, or (c) in any way become financially responsible for any commitments undertaken by the subsidiaries.
120. Until further notice, PREPA shall provide no resources or assistance to, or receive resources or assistance from, any affiliate whose business activities include



competing to provide renewable energy facilities. PREPA shall disclose all such resources or assistance that have been provided to date

* * *



Any party adversely affected by this Final Resolution and Order may file a motion for reconsideration before the Commission, pursuant to Section 11.01 of Regulation 8543 and the applicable provisions of Act No. 170 of August 12, 1988, as amended, known as the Uniform Administrative Procedure Act ("LPAU", for its Spanish acronym). Said motion must be filed within twenty (20) days from the date in which copy of this Final Resolution and Order is notified and such notice is filed in the case docket by the Commission's Clerk. Any motion for reconsideration must be filed at the Commission Clerk's Office, located at the Lobby of 268 Muñoz Rivera Ave., San Juan, PR 00918. Copy of the motion as filed must be sent by email to all the parties notified of this Final Resolution and Order within the twenty (20) days established herein.

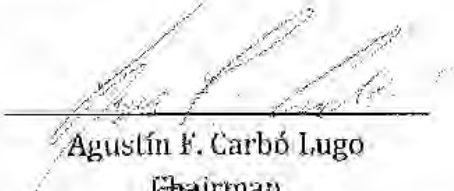
The Commission shall have fifteen (15) days from the date in which such motion is filed to consider it. If the Commission rejects it forthright or fails to consider it within said period of fifteen (15) days, the term to seek judicial review shall begin on the date in which the Commission notifies its rejection or the date in which said fifteen (15) days expire, whichever occurs first. If the Commission considers the motion, the term to seek judicial review shall commence from the date a copy of the notice of the Commission's resolution definitively resolving the motion for reconsideration is notified and copy of such notice is filed by the Commission Clerk. The Commission shall have ninety (90) days from the date the motion for reconsideration was filed to issue a final determination. If the Commission considers the motion for reconsideration but fails to take any action with respect to such motion within ninety (90) days of its filing, it shall lose jurisdiction and the term to seek judicial review shall commence upon the expiration of said ninety (90) day term, unless the Commission, for just cause and within those ninety (90) days, extends the term to resolve for a period that shall not exceed thirty (30) days.

In the alternative, any affected party may file a petition for review before the Court of Appeals within a term of thirty (30) days from the date a copy of the notice of this Final Resolution and Order was notified and copy of such notice was filed by the Commission's Clerk. Filing and notice of a petition for review before the Court of Appeals shall be made pursuant to the applicable provisions of Regulation 8543, the LPAU and the Rules of the Puerto Rico Court of Appeals.


Given its complex and technical nature, the Commission publishes this Final Resolution and Order in English. However, for the benefit of all parties involved, the Commission will provide a Spanish translation approximately 30 days from today. Should any conflict between each version arise, the English version shall prevail.




Be it notified and published.


Agustín F. Carbó Lugo

Chairman


Ángel R. Rivera de la Cruz
Associate Commissioner


José H. Román Morales
Associate Commissioner

CERTIFICATION

I hereby certify that the majority of the members of the Puerto Rico Energy Commission has so agreed on January 10, 2017 and on this date a copy of this Final Resolution and Order was notified by electronic mail to the following: n-ayala@aeepr.com, c-aquino@aeepr.com, glenn.rippinge@r3law.com, michael.guerra@r3law.com, john.ratnaswamy@r3Law.com, codiot@opic.pr.gov, jperez@oipc.pr.gov, mmuntanerlaw@gmail.com, jfeliciano@constructorespr.net, abogados@fuerteslaw.com, jose.maeso@aae.pr.gov, edwin.quinones@aac.pr.gov, nydinmarie.watlington@cemex.com, aconer.pr@gmail.com, epenenergypr@gmail.com, jorgehernandez@escopr.net, ecandelaria@camarapr.net, pga@caribe.net, manuelgabrielfernandez@gmail.com, agraitfe@agraitlawpr.com, maribel.cruz@acueductospr.com, mgrpcorp@gmail.com, eirizarry@ccdlawpr.com and pnieves@vnblegal.com, attystgo@yahoo.com. I also certify that today, January 10, 2017, I have proceeded with the filing of the Resolution issued by the Puerto Rico Energy Commission and I have sent a true and exact copy to the following:

Puerto Rico Electric Power Authority

Attn.: Néida Ayala Jiménez
Carlos M. Aquino Ramos
P.O. Box 363928
Correo General
San Juan, PR 00936-4267

Rooney Rippie & Ratnaswamy LLP

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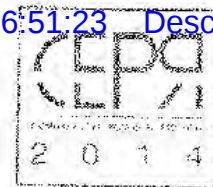
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For the record, I sign this in San Juan, Puerto Rico, today, January 10, 2017.



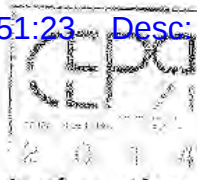
María del Mar Cintrón Alvarado
Clerk



Procedural History

TIMELINE AND HISTORY OF THE PROCEEDING

- **First Order on Rate Case Proceeding:** June 1, 2015. Pursuant to the requirements of Act 57-2014, which required PREPA to file its first rate case within one hundred and eighty (180) days of the approval of Act 57-2014, the Commission initiated the procedure by ordering PREPA to file a petition for rate reviews consistent with the regulation on filing requirements that was issued by the Commission on a later date.
- **Rate Case Petition Regulations Enacted:** July 24, 2015. The Commission enacted and approved Regulation No. 8620, known as the Regulation on Rate Filing Requirements for the Puerto Rico Electric Power Authority ("Regulation 8620"), which established the filing requirements for PREPA's first Rate Case. Regulation 8620 was enacted pursuant to the emergency procedures set forth in the Uniform Administrative Procedures Act ("UAPA"), as authorized by Article 6.20 of Act 57-2014.
- **Rate Case Petition Regulations Amended:** March 28, 2016. Although the Commission had ordered PREPA to file its first rate case through its May 29, 2015 Order, ongoing restructuring negotiations with PREPA's bondholders and main creditors forcibly postponed the filing until a clear understanding of PREPA's financial obligations was obtained. This resulted in the enactment of Act 4-2016, known as the PREPA Revitalization Act ("Act 4-2016"), which established the mechanism for the restructuring of PREPA's financial obligations and operational and administrative procedures. Act 4-2016 also amended several provisions of Act 57-2014 related to the review of PREPA's rates. As such, the Commission adopted a new regulatory framework consistent with the changes incorporated by Act 4-2016 and approved and enacted Regulation No. 8720, known as the New Regulation on Rate Filing Requirements for the Puerto Rico Electric Power Authority's First Rate Case ("Regulation 8720"). Regulation 8720 was enacted pursuant to Section 2.13 of the UAPA.
- **Request for Waiver:** March 30, 2016. In anticipation of its formal application for rate review and pursuant to Section 2.19 of Regulation 8620, PREPA filed a request seeking waiver from compliance of filing requirements set forth in Regulation 8620, specifically for subsections 3.02(D), 2.10(A) and 1.08(43). PREPA also requested clarification of sub-sections 3.02(A) and 2.10(C), which required PREPA to file to the Commission all reports from the Chief Restructuring Officer to PREPA's Board of Directors.
- **Response to Waiver Request:** April 13, 2016. The Commission issued an Order addressing PREPA's request for waiver in which it determined that the requests made related to sub-sections 3.02(D) and 1.08(43) were unnecessary and granted the



requested waiver for sub-section 2.10(A). The Commission also clarified sub-section 3.02(A) and 2.10(C) stating that such reports included information related to PREPA's overall performance and operations, which is relevant to review PREPA's actual costs.

- **Second Request for Clarification and/or Waiver:** May 4, 2016. PREPA filed a second request for clarification and /or waiver of certain provisions of Regulation 8720 with regards to the design and reconciliation of provisional rates.
- **Response to Second Clarification and/or Waiver Request:** May 12, 2016. The Commission issued an Order addressing PREPA's request for clarification and/or waiver. As a response to PREPA's clarification request regarding provisional rates, the Commission determined that PREPA should provide at least two (2) alternatives for the implementation of provisional rates, one contemplating the implementation of a uniform percentage change in base rates across all customers' classes and a second alternative contemplating the application of a specific percentage change in base rates for each customer class, provided that said percentage change must be applied uniformly within each class. With regards to the request for clarification of the reconciliation mechanism, the Commission deemed it as premature and deferred it to be solved further on in the proceeding.
- **PREPA's Verified Petition for Approval of Permanent Rates and Temporary Rates ("Petition"):** May 27, 2016. PREPA filed its Petition pursuant to Regulation 8720³²⁹. Along with PREPA's Petition, PREPA requested temporary rates pursuant to Section 6A(e) of Act 83, Section 6.25(d) of Act 57-2014 and Section 2.02 of Regulation No. 8720. In its Petition for temporary rates, PREPA proposed a distinct percentage increase to each customer class to recover what it considered to be a deficiency of \$222,256,790 (on an annual basis).
- **Determination of Filing Completeness:** June 13, 2016. The Commission issued a Resolution and Order in which it determined that PREPA's Petition was incomplete and issued a list of fourteen (14) specific findings of incomplete filing requirements³³⁰ that PREPA needed to provide to complete their Petition.

³²⁹ PREPA filed direct testimony of the following witnesses: Javier Quintana, Executive Director of PREPA; Lisa J. Donahue, Managing Director, AlixPartners, LLP and Chief Restructuring Officer; Panel Testimony of Sonia Miranda Vega, Director of Planning and Environmental Protection, Puerto Rico Electric Power Authority (replaced by Dr. Quintana); Antonio Perez Sales, Director, AlixPartners, LLP; Virgilio Sosa Director, AlixPartners, LLP; Panel Testimony of Ralph Zarumba, Vice President, Concentric Energy Advisors and Eugene Granovsky, Managing Consultant at Navigant Consulting; Panel Testimony of Francis X. Pampush, PhD, Director, Navigant Consulting, Inc; Lucas D. Porter, Managing Consultant, Navigant Consulting Inc.; and Dan T. Stathos, Associate Director, Navigant Consulting Inc.; Lawrence Kaufmann, PhD, Senior Advisor, Navigant Consulting, Inc.; and Ross Hemphill, PhD, Senior Advisor to Navigant Consulting, Inc.

³³⁰ See Attachment A of June 13, 2016 Resolution and Order on Docket No. CEPR-AP-2015-0001.



- **Determination of Provisional Rates:** June 27, 2016. The Commission granted PREPA's request for a temporary rate. The Commission determined that PREPA had complied with the requirements of Regulation No. 8720 and had demonstrated and justified the need of implementing provisional rates. The Commission approved a uniform rate increase of 1.299¢/kWh among all customer classes, the amount necessary to produce the \$222 million in new revenue.
- **Determination of Completeness:** July 15, 2016. The Commission issued a Resolution and Order in which it determined that the Petition, as supplemented by PREPA, was complete for purposes of Regulation 8720.
- **Interventions:** August 1, 2016 – August 5, 2016. The Commission received sixteen (16) requests for intervention and on August 12, 2016, through a Resolution and Order, the Commission granted intervention to fifteen (15) entities. The following parties were granted intervention: PV Properties, Inc., Windmar PV Energy Inc., Windmar Renewable Energy, Inc. and Coto Laurel Solar Farm, Inc. ("Windmar Group"); Commonwealth Energy Public Policy Office ("CEPPO"); Asociación de Consultores y Contratistas de Energía Renovable de Puerto Rico ("ACONER"); CEMEX de Puerto Rico, Inc. ("CEMEX"); Energy & Environmental Consulting Services Corp. ("ESCOPR"); Sunnova Energy Corporation ("Sunnova"); Independent Consumer Protection Office ("ICPO"); the Puerto Rico Aqueduct and Sewer Authority ("PRASA"); Instituto de Competitividad y Sostenibilidad Económica de Puerto Rico ("ICSE-PR"); Puerto Rico Industrials Association ("AIPR", for its Spanish acronym); Marketing, Industry and Food Distribution Chamber ("MIDA", for its Spanish acronym); Puerto Rico Hospitals Association ("Hospitals Association"); Centro Unido de Detallistas (*Retailers*) ("CUD", for its Spanish acronym); Puerto Rico Chamber of Commerce ("Chamber of Commerce"); and the Puerto Rico Construction Association ("ACPR", for its Spanish acronym or "Builders Association").³³¹ The Commission denied the Asociación Puertorriqueña de Energía Verde's ("APEV") request for intervention³³².

³³¹ The Commission granted ICSE-PR, Industrials Association, MIDA, the Hospitals Association, the Centro Unido de Detallistas, the Chamber of Commerce and the Builders Association subject to them coordinating their joint participation through a group denominated "Commercial and Industrial Associations Consortium" based on the striking similarities between the motions filed by the parties. The Commission determined the motions presented did not show the existence of a particular interest distinguishable from those of other Associations. ICSE-PR, AIPR, AHPR, and the Chamber of Commerce requested reconsideration of the Commission's determination to join the parties. After several procedural events and examining the parties' arguments, the Commission reconsidered its August 12, 2016 determination with regards to the joint appearance by the Associations.

³³² APEV requested reconsideration of the Commission's determination on September 1, 2016. The Commission denied APEV's request for consideration on September 15, 2016.



- **Commission Issues Procedural Timeline:** August 15, 2016. The Commission issued the Procedural Timeline for the Rate Case proceeding.
- **Discovery:** August 15, 2016 – September 19, 2016. Intervenors had the opportunity to conduct discovery regarding a diverse range of subjects related to PREPA's Petition.
- **Public Hearings:** September 10, 2016 – September 14, 2016. The Commission held four (4) public hearings in different places around the Island with the purpose of achieving a bigger citizen participation.³³³
- **PREPA Revised Testimony:** October 13, 2016³³⁴. Through Order of September 27, 2016 the Commission requested PREPA to submit supplemental or revised testimony and exhibits to ensure its Petition was up to date and consistent with events that had transpired and directly impacted many of the scenarios and assumptions in which PREPA based its Petition. In specific, the Order also requested that the revisions submitted by PREPA reflected the Final Resolution and Order on the Integrated Resource Plan, a per kWh Transition Charge for residential customers and necessary revisions due to the departure of Sonia Miranda, former Director of Planning and Environmental Protection³³⁵.
- **Intervenor Testimony:** October 25, 2016³³⁶. Intervenors filed their pre-filed written testimonies. For ACONER appeared witnesses Mr. Edward Previdi, PE, President of ACONER and economist Mr. Vicente Feliciano; for the Chamber of Commerce appeared witness Gerardo Cosme Nuñez, PE; for CEMEX appeared Mr. Enrique García, President and CEO of CEMEX and Manuel R. Valente, Director of Operations of CEMEX; for CUD appeared Mr. Nelson Ramírez; for the Builders Association, Mr. Emilio Colón Zavala, PR Vice President of the ACPR; for Hospital Association, Mr. Jaime G. Plá Cortés, Executive President of the Puerto Rico Hospital Association; for ICSE-PR appeared Mrs. Cathy Kunkel, Mr. Tom Sanzillo, Director of Finance for the Institute for Energy Economics and Financial Analysis and Dr. Victor Glass, Professor at Rutgers Business School; for the Industrials Association, Mr. Rodrigo Masses and Artze,

³³³ The public hearings were held on September 10, 2016 in Mayagüez, September 12, 2016 in Ponce, September 13, 2016 in Humacao and September 14, 2016 in San Juan.

³³⁴ The initial date to file the revised or supplemental testimony was October 11, 2016. On that same date, PREPA filed a request for extension, which was granted by the Commission by Resolution of October 12, 2016.

³³⁵ Mrs. Sonia Miranda retired mid case. Her testimony was adopted by the Executive Director, Javier Quintana-Méndez, PE.

³³⁶ The initial date per the Commission's published calendar to file Intervenor's pre-filed testimony was October 14, 2016, nevertheless after several changes to the procedural calendar the final date to file testimonies was set for October 25, 2016.



Chairman of the Board of Directors of the AIPR; for MIDA appeared Mr. Manuel Reyes Alfonso, Executive Vice-President for MIDA³³⁷; for CEPPO appeared Mr. José G. Maeso González, EIT, Director of the CEPPO; for the ICPO appeared Dr. Guillermo M. Riera, PE; for PRASA appeared Mrs. Lynnette M. Ramírez Rivera, Executive Director of Infrastructure; for Sunnova appeared economist Mr. Steven Gabel; and for Windmar, Mr. Víctor L. González.³³⁸

- **Discovery on Intervenor's Pre-Filed Testimony:** October 28, 2016 – November 2, 2016. PREPA and the Commission had the opportunity to conduct discovery related to the matters addressed by intervenors in their testimonies.
- **Technical Conference Calls:** October 20, October 31, November 9 and November 15, 2016. The Commission Staff held several Technical Conference Calls to clarify subjects and issues that were addressed during the Commission's discovery process to PREPA. Both PREPA and intervenors participated in the Conference Calls.
- **Hemphill Updated Testimony:** November 14, 2016. On October 14, 2016, PREPA filed a supplemental testimony of Dr. Ross Hemphill. The Commission, through Resolution of October 27, 2016, requested PREPA to update Dr. Hemphill's testimony to answer how his proposed formula rate mechanism provided the Commission with the resources to prevent PREPA from incurring in costs that are not prudent and reasonable.
- **Rebuttal Testimony:** November 16, 2015³³⁹. The parties had the opportunity to file written rebuttal testimony to any testimony filed by any of the intervenors.
- **Rebuttal Testimony Late Filing:** November 16, 2016. On November 14, 2016, PREPA filed part of its rebuttal testimony accompanied by a motion notifying the Commission that it was not able to file in time the rebuttal testimonies of Javier Quintana-Méndez, Lisa Donahue and the panel testimony of Javier Quintana-Méndez, Antonio Pérez Sales and Virgilio Sosa due to lack of availability from the witnesses to approve the final versions. The Commission denied PREPA's request for leave to file the testimonies through Resolution of November 21, 2016.

³³⁷ On November 15, 2016, MIDA filed a motion notifying its intent to desist of their intervention in the instant proceeding. The Commission, through Resolution and Order of November 17, 2016, took notice of MIDA's motion and accepted the resignation. The Commission also stroke MIDA's testimony from the record and ordered all parties to disregard MIDA's filings in the present case when addressing any issues on the proceeding.

³³⁸ Environmental Consulting Services Corp. did not file a pre-filed written testimony.

³³⁹ The initial date to file the rebuttal testimony was November 10, 2016. On that same date PREPA filed a request for extension to November 16, 2016, which was granted by the Commission by Resolution of November 14, 2016.



- **Commission's Expert Reports:** November 21, 2016 – November 23, 2016. The Commission published five reports authored by the Commission's technical consultants, to provide all parties an opportunity to comment on the analysis conducted, and recommendations made. The Commission's decision to publish its consultant's reports was consistent with the provisions of Act 57-2014 regarding the transparency of the proceedings. Therefore, to promote transparency, the Commission chose to make all analyses and recommendations public and allow the parties to question them at the technical hearings. The above was decided with the interest of achieving a well informed and duly grounded final determination. The reports addressed the following subjects: Revenue Requirement Equation, authored by Ralph Smith and Mark Dady³⁴⁰; Financial Issues, authored by Steven Hill³⁴¹; Reasonableness of Costs, authored by Dr. Jeremy Fisher and Dr. Ariel Horowitz³⁴²; Revenue Allocation, Rate Design and Distributed Generation, authored by Paul Chernick³⁴³; and Methods for Updating Rates and Ensuring Prudence, authored by Tim Woolf³⁴⁴.
- **Technical Hearings:** November 29, 2016 – December 16, 2016. The Commission held a technical hearing consisting of nine (9) panels organized by subject matter based on the parties' testimonies. During each panel the Commission and parties questioned the parties' expert witnesses and Commission's technical consultants with regards to their testimony and expert reports.
- **Parties Substantive Briefs:** December 27, 2016. The parties had the opportunity to file substantive briefs before the Commission. On December 19, 2016, the Commission issued a set of directives and questions to guide the parties' discussion on substantive matters. The following parties submitted their briefs ACONER, Sunnova, CEMEX, ICPO, Windmar, ICSE-PR, PRASA and PREPA.
- **Parties Legal Briefs:** December 28, 2016. The parties had the opportunity to file substantive briefs before the Commission. On December 20, 2016, the Commission issued a set of directives and questions to guide the parties' discussion on legal

³⁴⁰ Ralph Smith, Certified Financial Planner professional, Certified Rate of Return Analyst, and licensed Certified Public Accountant and attorney with Larking & Associates and Mark Dady, certified public accountant and regulatory analyst with Larkin & Associates.

³⁴¹ Steven Hill, financial consultant, and principal of Hill Associates.

³⁴² Dr. Jeremy Fisher, Principal Associate at Synapse Energy Economics, Inc., and Dr. Ariel Horowitz, Senior Associate at Synapse Energy Economics.

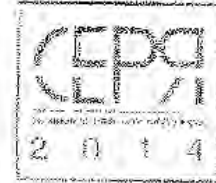
³⁴³ Paul Chernick, President of Resource Insight, Inc.

³⁴⁴ Tim Woolf, Vice President at Synapse Energy Economics.



matters. The following parties submitted their briefs ACONER, Sunnova, CEMEX, ICPO, Windmar, ICSE-PR, PRASA and PREPA.

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Summary of Witness Testimonies

Puerto Rico Electric Power Authority

Summary of the Testimony of Javier Quintana Méndez, Ph.D., P.E., Executive Director³⁴⁵

Dr. Quintana's direct testimony provides background and basic information for purposes of the rate review. His testimony describes at a high level PREPA's structure, mission, and vision as a public power electric utility. He also discusses, at a high level, what PREPA is doing to mitigate rate increases with its business plan and the focused efforts to improve PREPA and its operations that began in summer 2014 and continue to this day and going forward. He also provides a high level overview of PREPA's rate Petition, reasons for the rate review filing and rate impacts for PREPA customers. He also provides a "road map" to the other testimony filed with the Petition. In addition, Dr. Quintana adopted the panel testimony of Sonia Miranda (PREPA Ex. 3.0) after Ms. Miranda retired.

Dr. Quintana's supplemental direct testimony responds to the Commission's questions in its September 27, 2016, Order. He summarizes key events that have occurred since PREPA first filed its case, presents and explains PREPA's current conclusions about how the Commission's Integrated Resource Plan ("IRP") Order of September 23, 2016 could affect PREPA's revenue requirement for Fiscal Year ("FY") 2017 and PREPA's business plans for FY2017, 2018, and 2019. His testimony also provides a "road map" to the other Supplemental Direct Testimony filed by PREPA.

He also testified as part of many Panels at the technical hearing. Among the many subjects he discussed were PREPA's needed rate increase, its financial condition and debt restructuring efforts (in part confidential testimony), development of PREPA's budget, contract relations with union laborers, and the need for AOGP and the absence of realistic alternatives.

Summary of the Testimony of Lisa J. Donahue, Managing Director, AlixPartners, LLP and Chief Restructuring Officer

Ms. Donahue's direct testimony in support of permanent rates discusses issues related to PREPA's financial condition. She discusses PREPA's financial and liquidity situation and how it must be addressed, particularly in relation to this rate review. She also discusses the efforts to restructure PREPA's debt, how this rate review addresses the debt and liquidity issues, and PREPA's immediate liquidity crisis that requires immediate action.

Ms. Donahue's direct testimony in support of provisional rates discusses PREPA's liquidity crisis and how it relates to PREPA's provisional rates request. Her rebuttal

³⁴⁵ Dr. Quintana's rebuttal testimony was not allowed since it was filed late. See Resolution, CEPR-AP-2015-0001, November 21, 2016.



testimony was not allowed as late. She testified during multiple Panels at the technical hearing, including on the subject of debt restructuring efforts (in part confidential testimony), among others.

Summary of the Testimony of Sonia Miranda Vega, Director of Planning and Environmental Protection, Puerto Rico Electric Power Authority (replaced by Dr. Quintana); Antonio Perez Sales, Director, AlixPartners, L.L.P.; Virgilio Sosa Director, AlixPartners, LLP.³⁴⁶

The Business Plan Panel's direct testimony provides an overview of PREPA's recovery plan and explains how the rate deficiency has been cut by 60% to significantly mitigate the rate increase. It also explains PREPA's historical operational and service issues and describes how PREPA's Business Plan was developed to address them. The panel testimony describes the Business Plan and the progress to date in generating savings for PREPA customers, discusses the expected savings to be achieved going forward for PREPA customers, and describes how the Business Plan (and update to it) served as a basis for the known and measurable changes proposed to the 2014 test year revenue requirement. Finally, it provide support for PREPA's capital expenditures and operating expenses included in the rate filing.

The panel testified as part of the technical hearing on multiple Panels, supporting operating expenses and AMI meter capital spending, among many topics. In particular, Mr. Sosa testified at Panel D of the technical hearing in support of outage costs and other information. He conducted an analysis of the severity and frequency of forced outages between 2013 and 2014, and conducted a cost analysis of various factors and the impact to the consumer. The increase in severity of outages is affected by PREPA's ability to procure and contract the necessary contractors to repair the unit. Mr. Pérez also testified on several panels, including Panel E, where he supported PREPA's budget allocations, particularly costs associated with labor and the replacement of meters. Mr. Pérez also testified regarding the limits on performance bonuses and the benefits of allowing incentives.

Summary of the Testimony of Ralph Zarumba, Vice President, Concentric Energy Advisors and Eugene Granovsky, Managing Consultant at Navigant Consulting.

Mr. Zarumba and Mr. Granovsky's first piece of direct testimony (PREPA Ex. 4.0) presents and supports what is commonly referred to as the "rate design" of the proposed "permanent" rates. Mr. Granovsky and Mr. Zarumba explain that the proposed rate design: (1) updates tariffs to reflect the costs of the utility; (2) gives PREPA the opportunity to recover its "revenue requirement" (its costs of offering and providing service to its Customers); (3) moves toward a more equitable allocation of the revenue requirement to Customers; (4) implements legislative initiatives; (5) promotes a clean energy solution; and (6) improves the transparency of rates and bills. Mr. Zarumba and Mr. Granovsky's second piece of direct testimony (PREPA Ex. 8.0) presents and supports what is commonly referred to as the embedded cost of service study or "ECOSS". The ECOSS study is used in the

³⁴⁶ Their rebuttal testimony was not allowed as late.



development of rates to assign or allocate a portion of a utility's overall "Revenue Requirement" to each of the utility's separate Tariff Rate classes. Their testimony describes the process used to develop the ECOSSE and provides the results of the ECOSSE studies for three scenarios. Mr. Zarumba and Mr. Granovsky's supplemental direct testimony (PREPA Ex. 15.0) revises the residential rate design previously filed in their direct testimony. Their testimony includes: an explanation of the changes in the design of the Transition Charge for residential customers; a discussion of why a change in the residential pricing design is required; the proposed changes in the residential pricing design; errata with respect to cost of service information and proposed pricing design; revisions to PREPA's Marginal Cost Worksheet; and revisions to the proposed pricing design which result from the above changes including revised tariff sheets.

Mr. Zarumba and Mr. Granovsky's rebuttal testimony revises the proposed tariffs to reflect changes in the format of the revenue requirement identified by the Revenue Requirement Panel and updated marginal energy costs attributable to a change in the fuel and purchased power costs projections. Their testimony also responds to certain topics and issues raised in specific intervenor testimony, addresses pricing issues for Distributed Energy Resources ("DER"), and responds to certain practical and mechanical challenges introduced in the Commission's November 3rd Resolution limiting the pricing design topics in this proceeding. Mr. Zarumba and Mr. Granovsky testified on multiple Panels at the technical hearing, supporting the rate design and cost of service studies, among many topics.

Summary of the Testimony of Francis X. Pampush, Ph.D., Director, Navigant Consulting, Inc.; Lucas D. Porter, Managing Consultant, Navigant Consulting Inc.; and Dan T. Stathos, Associate Director, Navigant Consulting Inc.

The Revenue Requirement Panel's testimony provides the results of their original analysis of PREPA's historical and current investments in electric plant in service and its costs of operation to serve its customers, as well as costs of debt. This analysis focuses on PREPA's financial requirements starting with Fiscal Year 2014 in accordance with the Commission's rules and then looking at known and measureable adjustments, in order to develop the revenue requirements as of FY2017 sufficient to allow PREPA to meet its obligations to provide safe, reliable, and reasonably priced electric power and services to its residential, industrial, commercial, and governmental customers. The panel also describes their approach to the development of revenue requirements that provides a reasonable basis for rates to be proposed to the Commission, including evaluations using three different methodologies: an evaluation of PREPA's cash needs to meet its obligations, the Modified Cash Basis ("MCB"), which they found to be the most suitable approach; an evaluation of revenues sufficient to provide a minimum Debt Service Coverage Ratio ("DSCR"); and an evaluation of the revenues required to produce a reasonable return on Rate Base (i.e., the net investments in its system on which it should earn a return of and on that investment) under traditional Accrual Basis (Rate Base/Rate of Return) regulation. The panel chose the MCB model on its merits, which yielded the lowest of the three revenue requirement figures. The panel also describes the impact on rates and costs of capital from a longer term financial perspective and the financial profile that PREPA should seek to attain as a condition of regaining access to credit markets. This section provides some identifiable metrics that can



be tracked for progress. The revenue requirement panel's supplemental direct testimony responds to the Commission Order dated September 27, 2016, requesting PREPA to provide revisions to the revenue requirement to reflect certain considerations consistent with the Commission's Integrated Resource Plan ("IRP") Order of September 23, 2016, and provides errata to previously filed testimony.

The Revenue Requirement's rebuttal testimony provides certain revised schedules that reflect a correction in the way that Contributions in Lieu of Taxes ("CILT") and Subsidies are handled in the calculation of PREPA's revenue requirements. It also responded to various intervenors regarding revenue requirements and pass-through fuel and purchased power costs. This correction yields a base rate revenue requirement of \$2,732,427,174, and a base rate increase of \$178,164,977. The revenue requirement panel also testified on many subjects during the technical hearing.³⁴⁷ Mr. Stathos, Dr. Pampush, and Mr. Porter testified on multiple Panels at the technical hearing, supporting PREPA's revenue requirement and its calculation, among other topics.

Summary of the Testimony of Lawrence Kaufmann, Ph.D., Senior Advisor, Navigant Consulting, Inc.

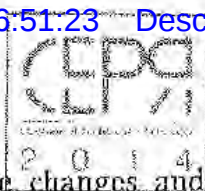
Dr. Kaufmann's direct testimony presents benchmarking evidence on PREPA's cost performance relative to a number of peer utilities. This evidence suggests that PREPA's internal cost management is not the primary factor in PREPA's financial difficulties. In other words, past imprudence in spending, if any, is not a primary driver of the needed rate increase.

Dr. Kaufmann's direct testimony responds to the testimony of ICSE-PR witnesses Tom Sanzillo and Cathy Kunkel regarding benchmarking and the reasonableness of PREPA's costs and revenues in comparison with other utilities. He supports his direct testimony and refutes the ICSE-PR testimony. He also testified at the technical hearing, including explaining the purposes of the benchmark testimony.

Summary of the Testimony of Ross Hemphill, Ph.D., Senior Advisor to Navigant Consulting, Inc.

Dr. Hemphill's direct testimony (PREPA Ex. 7.0) supports PREPA's proposed Formula Rate Mechanism ("FRM"). He discusses the advantages of formula ratemaking versus the traditional rate case approach, PREPA's proposal for an FRM and explains how it would operate and what annual filings PREPA would make as part of the proposed process. He also discusses why a formula approach is particularly suited to PREPA's current situation. Dr. Hemphill's supplemental direct testimony (PREPA Ex. 16.0) provides additional detail about

³⁴⁷ PLEASE NOTE: The foregoing figures do not reflect (1) Staff's adjustment for fuel costs increase, which should be adopted but simply adds to the pass-through of fuel costs; and (2) the associated Staff bad debt expense adjustment, which also should be adopted, and which does affect base rates.



the FRM and shows how the FRM directly, justly, and reasonably to the changes and uncertainties identified in the Commission's Order of September 27, 2016. Dr. Hemphill's additional supplemental direct testimony (PREPA Ex. 17.0) provides additional shall include specific information and concrete examples of how the proposed FRM provides the Commission with the ability to prevent PREPA from incurring in unreasonable or imprudent costs.

Dr. Hemphill's rebuttal testimony (PREPA Ex. 25.0) responds to ICSE-PR witnesses Tom Sanzillo and Cathy Kunkel and addresses the concern raised by intervenors that a rate increase will drive down demand. Dr. Hemphill clarifies that the increased regulatory oversight that Mr. Sanzillo and Ms. Kunkel acknowledge comes with the FRM will provide the Commission with tools to address the challenge of setting just and reasonable base rates. He also details how an FRM would reconcile revenues and expenses to address any drops in load, and notes that the FRM process does not increase rates as compared to traditional ratemaking. He also testified at the technical hearing, providing support for PREPA's proposed FRM and providing details of how the FRM would provide transparency over PREPA's costs and planning process. He further discussed how the FRM would operate and incentives for PREPA to control costs and operate under a budget submitted to the Commission.

Summary of the Testimony of Ralph Zarumba, Vice President, Concentric Energy Advisors.

Mr. Zarumba's direct testimony in support of permanent rates presents and supports PREPA's Marginal Cost of Service Study ("MCOSS"). He describes the MCOSS preparation process and details how the MCOSS identifies the value of incremental costs required to serve new load.

Mr. Zarumba's direct testimony in support of temporary rates presents and supports PREPA's proposed temporary rates. He describes the evidence supporting the need for temporary rates and discusses implementation and rate design of the temporary rates, as well as \$/kWh increases for each customer class. He also testified on the subject of how to do the provisional rate reconciliation at the technical hearing.

Summary of the Testimony of Dan T. Stathos, Associate Director, Navigant Consulting Inc.

Mr. Stathos' direct testimony in support of temporary/provisional rates presents and supports the revenue requirement to support PREPA's then-proposed temporary rates. The proposed temporary rates were based on the same original revenue requirement and revenue deficiency calculated for purposes of establishing new "permanent" rates, so the temporary rates are supported by the same extensive information and materials.

Summary of the Testimony of Gregory Rivera Chico, Superintendent in the Planning and Research Division, Puerto Rico Electric Power Authority.

Mr. Rivera's rebuttal testimony responds to issues raised by intervenors, including: financing of capital projects; subsidies; interconnection of generation; solar and storage;



renewable energy credits; the IRP Order; and renewables Power Purchase and Operating Agreements. His testimony clarifies the legal and operational issues related to various proposals presented by intervenors.

Mr. Rivera also testified during the technical hearing on numerous subjects as part of multiple panels. During Panel D, Mr. Rivera confirmed that PREPA did not conduct an elasticity study; however, this issue was addressed during Panel E. The revenue and allocation requirements are snap shots in time and do not change with each customer that enters/leaves the system, this would require a constant never-ending rate case. Prior to Act 57-2014, PREPA was not able to negotiate directly with customers; however, there is currently no position that exists to head this role. Anything would have to go through the Executive Director. He also supported PREPA's treatment of various other issues, including subsidies.

Summary of the Testimony of Lucas D. Porter, Managing Consultant, Navigant Consulting Inc.

Mr. Porter's rebuttal testimony provides data and support for the rebuttal testimony of Messrs. Zarumba and Granovsky (PREPA Ex. 24.0) concerning PREPA's proposed Net Energy Metering credit. His testimony regarding the lifecycle cost analysis of Solar PV provides a foundational quantification of the per kWh price of solar generation that satisfies all capital and operating cost requirements over the life of an asset. The analysis assumes efficient ownership of projects, which in Puerto Rico specifically requires Third-Party Ownership, wherein investors in solar projects take advantage of available incentives provided by the U.S. Federal government. This is a fair assumption, in that the additional capital cost burden is not taken by the people of Puerto Rico. It is also an assumption consistent with reality - in the United States, Third-Party Ownership has been the strong majority of new projects for several years, and, based on interviews and independent research, the same is true for Puerto Rico. His analysis assumes level of profit to equipment providers and project developers, positive returns to owners of the projects that are consistent with returns seen in other jurisdictions, standard contract structure assumptions, and applicable operating expenses. Mr. Porter also testified on these subjects during Panel H at the technical hearing.

Summary of the Testimony of Ernesto Ramos, PREPA Interim CFO.

Mr. Ramos testified during the technical hearing regarding, among other things, PREPA's financial condition, restructuring costs, budgeting and budgets, accounting, financial statements, other financial reports.

Summary of the Testimony of Joseline Estrada Rivera, Forecasting and Statistics Department Manager.

Ms. Estrada, during the technical hearing, supported PREPA's forecast and underlying econometric models, including the models' consideration of migration effect, energy efficiency, and distributed generation, among other factors. In providing responses to



questions about PRASA's preferential rate, Ms. Estrada re-iterated that the avoided cost that results from PRASA's preferential treatment would need to be absorbed by PREPA's other customers. Although PRASA does not consider the preferential rate a subsidy, Ms. Estrada stated that the preferential rate would equate to an approximate \$22 million subsidy.

Summary of the Testimony of Carlos Lauriano Rivera, Transmission & Distribution.

Amongst other topics, Mr. Lauriano, during the technical hearing, supported PREPA's need for programs to attract and retain good employees and the restrictions Act 66 places on PREPA, particularly salary negotiations. He also supported PREPA's budget estimates for distribution.

Summary of the Testimony of Martín Pérez García, Director of Generation.

Mr. Pérez testified during the technical hearings regarding the causes of outages, including the issue of deferred maintenance, which is impacted by budget issues and the reduction in skilled employees. He also testified regarding limited use facilities, generation plans going forward, and the maintenance contracts for Cambalache and San Juan. He also discussed the role of limited use facilities in modeling. The causes of the outage problem in terms of staff shortages and underspending, were large enough causes that would have existed independent of the AOGP maintenance deferral.

Summary of the Testimony of Juan Tirado, Director of Operations, Administrator of Generation.

Mr. Tirado, during the technical hearing, identified the steps of the budget request process for Generation and the effects of underfunding on capital projects. He also provided information about PREPA's reduced frequency of preventive maintenance. He testified regarding the limited use units and the plan for those units going forward. For CapEx this year, Mr. Tirado requested approximately \$115 million and received approximately \$80-\$85 million, this shortfall required deferral of certain activities.

Summary of the Testimony of Faustino Gonzales Quiles, Director, Transmission and Distribution.

Mr. Gonzales supported PREPA's operational expenses, particularly labor expenses. He testified during the technical hearing regarding PREPA's loss of skilled employees in the transmission, distribution, and customer service area. PREPA lost close to 1000 long term employees, after Law 66's implementation. Many of these personnel had over 25 years of experience with PREPA. PREPA has also lost many employees due to other retirements and employees leaving to go to other jobs or to the US. He also testified about the budget allocation process for transmission and distribution and about the limitations on hiring contractors caused by union restrictions. Mr. Gonzales also confirmed the 22% reduction in workforce experienced by PREPA and discussed this workforce loss in detail, as well as the restrictions imposed by Act 66. He proposed draft incentives plans that could be imposed



once the Act 66 restrictions are no longer in effect. He also discussed what PREPA needs to do to be able to attract the best employment candidates and retain good employees.

Summary of the Testimony of Roberto Ortiz-Rivera, Administrator, Transmission & Distribution.

During the technical hearing Mr. Ortiz supported the distribution budget and answered questions regarding PREPA's system of budget and resource allocation. He also provided an explanation of how PREPA utilizes its distribution budget and provided detail about what expenses would be covered by PREPA's blanket budget.

Summary of the Testimony of Alvin Román, Superintendent, Transmission & Distribution Planning.

Mr. Román testified during the technical hearing regarding necessary updates and maintenance to PREPA's system, both mechanical and electrical in nature. He also detailed how PREPA is currently prioritizing repairs and maintenance, and stated that it would take more than ten years to complete all the necessary repairs.

Summary of the Testimony of Carmen Flores, Customer Service Director.

Ms. Flores supported as part of her testimony during the technical hearing PREPA's treatment of customer service and billing issues, and discussed the management structure in the customer service directorate.

Commonwealth Energy Public Policy Office

Summary of the Testimony of José G. Mueso González, Executive Director.

Mr. Macso testimony compared the financial performance of rooftop photovoltaic systems ("PV systems") under the Puerto Rico Electric Power Authority's ("PREPA") current electric service tariff structure with the tariff structure proposed under Case No. CEPR-AP-2015-0001 and two (2) hypothetical alternative rate structures proposed by the CEPPA. The results presented are based in an analysis made by U.S. Department of Energy National Renewable Energy Laboratory (NREL).

The Net Present Value (NPV) of a PV system would be impacted more significantly for the GRS tariff customers, followed by the GSP and GST, in the order of 70% to more than 80% loss. NPV is more sensitive to net charges as the percentage of energy exported increases and as the production-to-consumption ratio approaches 100%. GSS customers are less affected because the proposal does not include a demand charge for this group, their fixed charge is lower than for other business classes and their volumetric charge is already higher. NREL analyzed an alternative tariff proposed by SOEP where demand charges would be discounted in proportion to the energy produced by their PV system and gross consumption charges are



changed to the net consumption portion. This proposal would produce an NPV similar to that for a PV system with the current rate structure for GSP and GST customers. For GRS customers, any charge different from what they currently experience will be detrimental to the NPV of a PV system. Not even moving the CILT and SUBA charges to the net consumption, do much for increasing the PV system value closer to the current one for GRS customers. Therefore, we conclude that any charge to a GRS customer will be against Act 4-2016 mandate of not being an obstacle to the development of renewable energy projects. For the GSP and GST customers, our proposal can contribute to produce a value to the customer similar of what they experience currently.

Independent Consumer Protection Office

Summary of the Testimony of Guillermo M. Riera, Ph.D.

The ICPO, through the expertise and testimony of Dr. Guillermo M. Riera, first performed tests to the New Fuel Adjustment Cost Rider ("FCA") using historical and publicly available data. The tests showed the potential of the new formula to overcharge customers because it does not reconcile properly. We compared the true up series with the actual historical series and performed a linear regression analysis to model the potential overcharge. It was recommended that the Commission closely examine this matter and require PREPA to provide test results. Second, the testimony showed that both, PREPA's proposed NEM Credit, and renewable energy contractors' profit, have a direct impact on projects' net present value ("NPV") and simple payback periods ("SPB"). The ICPO recommended that PREPA's NEM Credit may be reduced only to levels that renewable energy contractors' profit reductions (to more reasonable values, closer to 10%) can compensate, in order to maintain renewable energy projects, NPVs and SPBs unchanged. By doing that, a balance of interest is achieved, because the renewable energy sector is motivated to reduce profits to reasonable levels and become more competitive. PREPA does not discourage renewable energy use and may elect to use the new "transparent bill" to show customers the difference between the proposed and approved NEM Credit as a benefit or subsidy to maintain a competitive/robust renewable energy sector; and the economic impact on Non NEM customers' bills is reduced and is maintained to minimum levels.

Lastly, the testimony showed that formula ratemaking ("FRM") designs may weaken due process, are not easy to understand and accept by the public, and do not provide true incentives for cost management and prudence. The ICPO, through the testimony of Dr. Riera, recommended that the Commission to approve a design based on performance with some annual or periodic penalty mechanisms ("APMs").



CEMEX, Inc.

Summary of the Testimony of Enrique Alberto García Morelos.

Mr. García testified that CEMEX is the only producer and supplier of cement, concrete and certain aggregates made in Puerto Rico. The Ponce Plant is the largest cement producer on the island, and one of the most important energy consumers within the industrial sector. CEMEX has already made multiple modifications to its production plant, which included the massive reduction of personnel. As Mr. García stated, CEMEX has requested PREPA to review its electric rates since December 2015, but has been denied twice and referred to this proceeding. Mr. García also expressed that CEMEX is in a less competitive position in the market for cement exporting activities and that a reasonable electricity cost would be \$0.14/Kw-hr.

Mr. García also testified that the implications of the proposed rate review, along with the securitization charge and the effect that an increase in oil prices will cause on the PREPA revenues, are enough to destroy the productive activity of the cement industry in Puerto Rico. In general, companies will have to adjust cycles of operation and consider other business models. All of this resulting in a dramatic decrease of the consumption, electrical energy demand, and consequently PREPA revenues. These increases are the perfect formula for the failure of a public monopoly. PREPA has been very conservative in its estimate of decrease in energy demand. For example, CEMEX's exit as a consumer would be equivalent to the exit of more than ten thousand (10,000) Puerto Rican families of the PREPA network immediately. The remainder of the consumer base will experience, without any doubt, further increases to amortize fixed costs, and thus, more and more users will stop their production processes and find new sources of energy generation, shut down of operations, or emigrate from the island.

Summary of the Testimony of Manuel Reinaldo Valente Agüero.

Mr. Valente testified about the applicability of the load factor and the challenges to meet the same under the current rate based on energy use. As Mr. Valente affirmed, the cement mill is not operated due to the low sales and does not consume the necessary kilowatts per hour, causing CEMEX to breach the load factor. Mr. Valente expressed that the most recommended scenario to maintain the competitiveness and economic development related to the optimal operation of the plant in Ponce would be to implement a time of use at transmission voltage ("TOU-T") rate. In the alternative, Mr. Valente testified that the best scenario for CEMEX's operation would be the implementation of the LIS rate, modifying the penalty load factor by keeping the 50% of the LIS and high energy usage service at 115 KV - Special ("LIS SR") rates, as previously approved under PREPA Resolution 4036 on September 19, 2013.

Mr. Valente also stated that the proposed rate review could lead to millions of dollars in losses of PREPA revenues. For example, if PREPA does not apply to CEMEX the most competitive rate, CEMEX will need to lower energy consumption in order to maintain operations through the model of a cement importer. Mr. Valente expressed that in August



2016, CEMEX had to import a boat with clinker (i.e., an intermediate in the process of making cement) for the first time in its history.

Instituto de Competitividad y Sostenibilidad Energética de Puerto Rico

Summary of the Testimony of Victor Glass, Ph.D.

Dr. Glass testified that a filing should be accessible to interested parties. Those reviewing a filing should have confidence that the data underlying the filing is sound. They should be able to assess the quality of forecasts. They should expect that proposed prices are cost causative. Dr. Glass concluded that PREPA's filing failed in all respects. This because it does not follow a standard filing format. Instead, one must dig through the testimonies of experts to understand the nature of the rate-setting process and the proposed rates. PREPA's experts admitted that the underlying data is not of high quality, and crucial data used for allocating costs among services is not available. Also, forecast evaluation is not done in a consistent manner. It appears that energy cost forecasts have been rather poor. The methodology for setting overall rate changes is basically a cost pass-through to customers. Bondholders and PREPA management bear little risk. The large proposed rate increases could cause price-sensitive customers to migrate away from using PREPA's services that could lead to a death spiral. Large industrial customers may be a key market segment that is at risk for seeking alternative sources of energy. The proposed rate structure moves away from peak-load pricing, which could hurt the development of solar generation. Underlying the filing is the big assumption that the bond agreement will actually take effect. At this point, the likelihood of an agreement is unknown.

The threat of bankruptcy appears to have overwhelmed the thinking of PREPA and its consultants. PREPA has not considered selling assets, which could break up its stranglehold on the power business in Puerto Rico and lessen the industry's need for outside financing by PREPA. Other options have not been considered that are less far-reaching. For example, instead of a cost pass-through methodology, internal incentives could be introduced into PREPA to penalize poor management performance. Also, price caps could be considered for adjusting rates. Recognizing that PREPA could become bankrupt very quickly, interim rates are necessary to keep PREPA solvent. However, during this interim period, the Commission and other interested parties need to work with PREPA, if possible, to develop a new filing process and rate design that will be consistent with improving near-term and long-term efficiency and productivity in Puerto Rico's energy market. The new blueprint could include a major redesign of Puerto Rico's energy market and the introduction of a Puerto Rico Universal Service Program for low-income customers.

Summary of the Testimony of Ramon J. Cao García, Ph.D.

Upon examination of documents submitted by PREPA in support of a permanent rate increase in its tariffs, it was found that the documentation was extremely deficient. No information was provided, nor consideration appears to be given, to Marginal Energy Costs, cross-subsidies among PREPA's subsidiaries, and a subjective and arbitrary 5% differential



threshold was established for all rates except public lighting, with no objective criteria. Furthermore, in the documents examined, Mr. Cao was not able to find any consideration about economic consequences of proposed rate increases on the local economy, or even on how they are expected to affect the consumption of electricity, and, hence, on PREPA's revenues after a rate increase. To point out the importance of some of the topics not considered in PREPA's petition, the testimony presents an assessment of expected economic consequences of proposed electricity tariff rates increases. The economic topics considered are: (1) consequences of proposed rates on production costs in eight economic sectors, (2) their effect on Puerto Rico's Real GNP and total employment, (3) the impact of proposed new rates on cost of living, and (4) expected consequences on the quantity of electricity demanded.

To estimate expected consequences of PREPA's proposed increases in tariff rates on the industrial sectors of the economy, it was obtained, from the PR Planning Board, the 2013 Input/Output Transactions Matrix. It was found that the most affected sectors are: (1) wholesale and retail trade, with an increase in cost of intermediate inputs of 1.33%; (2) government, with a 1.09% increase; and (3) manufacture, which face an estimated increase of 0.51%. Then, using a regression equation to forecast real GNP, and assuming an increase of 4.2¢ per kWh in the price of electricity (as per PREPA's Schedule II), it was estimated a reduction of 1.05% in real GNP. This decline is additional to the 2.0% decline forecasted by the PR Planning Board for real GNP in fiscal year 2016-2017. An additional 1.05% contraction in real GNP is going to induce a reduction of 11,075 jobs. That would have raised unemployment rate to 13.1%, on the basis of August 2016 statistics. It was further estimated that a 4.2¢ increase in the price of kWh will cause an expected increase of 1.32% in the Consumer Price Index. In consequence, PREPA's proposed rate increase will result in making the general population 2.36% poorer, aggravating conditions created by the general contraction faced by the Puerto Rican economy since fiscal year 2007, including the 2.0% contraction in real GNP forecasted by the Puerto Rico Planning Board for fiscal year 2017. Since net production of electricity declined by 16.7% between fiscal years 2007 and 2016, it is simply unrealistic to assume that the demand for electricity will somehow remain at the level registered in fiscal year 2014, as PREPA's proposal assumes. For that reason, an aggregate demand function for electricity was computed, finding that an average increase of \$0.042 in the price per Kwh, would reduce the quantity demanded by 144.4 million Kwh, or 0.83%. It should be also noted, that a reasonable design for a tariff structure requires for the Utility to know the demand functions corresponding to principal categories of consumers. It appears that PREPA did not tried to get that information.

Summary of the Testimony of Tom Sanzillo and Cathy Kunkel

The Kunkel-Sanzillo testimony presented a comparison of PREPA's rates to other jurisdictions in order to illustrate that Puerto Rico is an outlier in terms of the level of rates being proposed relative to the local economic condition. We found that PREPA's proposed rates have a much higher level of debt service embedded in the rates of other large U.S. public power entities. We further noted that PREPA's rates are likely to be higher than forecast in 2017 because of the large underestimation of fuel costs. We believe that PREPA's overestimate of future load, the likely inability to meet poorly documented savings goals and



higher debt costs will increase pressure to raise rates beyond what PREPA has projected for future years. We believe it will not be possible to achieve an affordable rate structure without renegotiation of the underlying debt. PREPA, perhaps with the assistance of the PROMESA Board, must renegotiate a better debt deal that is more aligned with economic realities of Puerto Rico. Additionally, we suggest several mechanisms that the Commission could adopt to minimize imprudent expenditures by PREPA, including the oversight model of an Independent Private Sector Inspector General. Our testimony finds that the proposed rate design does not give customers, particularly commercial and industrial classes, the flexibility to lower their own energy costs and to expand the use of renewable energy generation in Puerto Rico. We recommend that open access in transmission and distribution be implemented and that the industrial and commercial tariff designs be weighted less heavily towards demand charges.

While the format of the case before the Puerto Rico Energy Commission has proceeded like a typical rate case in any other jurisdiction, the substance of this case is like no rate case we have seen before. First, a rate case fundamentally requires a certain level of basic trust between a utility and its regulator. The regulator must be able to trust that all budgets and financial information pertinent to the rate request are accurate and will be presented to the Commission without stonewalling. It must be able to trust that the utility's books and records represent a complete picture of the utility's finances. These elements are not present in the current rate case. Regarding PREPA's budget as a whole, Commission's advisors Drs. Fisher and Horowitz noted that "PREPA's provision of documentation to support its capital budget demonstrated gross managerial incompetency" (p. 81) and that "PREPA made so little documentation of the process and values underlying the [operations] budget available to Commission advisors that we have no choice but to consider the budget and the allocation thereof to be, in effect, unsupported" (p. 183).

Puerto Rico Aqueduct and Sewers Authority

Summary of the Testimony of Eng. Lynnette Ramírez Rivera.

Act 50-2013 was enacted to provide a preferential rate to PRASA, first of 0.22 cents per kilowatt-hour for the first 3 years, and then 0.16 cents per kilowatt-hour from fiscal year 2017 on. This is not a subsidy inasmuch the lower rate would come from savings managed by PREPA on its fuel costs. The public policy of the government of Puerto Rico was to pass those savings to the consumer through a lower rate to be charged by PRASA for its services. PRASA's second largest operating cost is precisely the energy cost, which is around 25% of its total operating costs. Furthermore, Act 50-2013 specifically ordered PRASA to use those energy savings to provide a lower residential rate for its customers. On December of 2015, PREPA notified PRASA of the elimination of the preferential rate. Nonetheless, at that time the power and jurisdiction to modify rates has been transferred to the Puerto Rico Energy Commission. Hence, PREPA did not have the power to eliminate the preferential rate, since that power rests with the Energy Commission. To establish the preferential rate, the Energy Commission has to take into consideration the public policy of Act 50-2013 and of Act 57-



2014; the price of natural gas; and the ability of PREPA to pay its obligations under the Trust Indenture that guarantee PREPA's bonds, among others.

The elimination of a preferential rate for PRASA will have several detrimental effects. First, it will increase PRASA's operational costs. It will also affect PRASA's cost and expense projections. Furthermore, Act 50-2013 contemplated the construction of one or several capital improvement projects with the preferential rate of 16 cents per kilowatt-hour. Since currently PREPA is not charging PRASA this rate, those projects cannot be developed. Act 50-2013 provides that those projects should be of great significance, that they should generate operating efficiencies, that they should consider climate change, and that they provide capacity for future growth, among other factors. Moreover, it will be difficult for PRASA to enter into the bond market to develop its capital improvement projects. Finally, the current PRASA's rate was established taking into consideration PREPA's preferential rate. Thus, if the preferential rate is not put into full force and effect, PRASA would have to consider, as one of its options, a possible increase on its current rates.

Windmar

Summary of the Testimony of Víctor González, President of Windmar.

In summary, Windmar Group's Testimony was given by its President Mr. Víctor González whom finds the Petition to fall short of meeting Act 57 of 2014's legal mandates and to be contrary to public policy on renewable energy. Víctor González Testimony provides suggestions to the Commission and PREPA regarding rate alternatives that should be considered as part of PREPA's new tariffs. Battery storage, distributed generation, ancillary services provided by renewables and electric cars are upon us and need to be considered now. The suggestions presented in the testimony can help modernize PREPA's grid and move Puerto Rico towards clean energy, conservation, efficiency, reducing fossil fuels, demand response management and promoting localized energy generation by its customers. All of which are required under Act 57-2014.

Regarding PREPA's Petition, the testimony also criticizes PREPA's proposal upon Net Metering Customers and the cost causation and gradualism methods applied by PREPA. Regarding Net Metering he makes reference to legal statutes that were ignored by PREPA's Petition, particularly Act 57-2014, Act 4-2016 and Act 114-2007 and illustrates the lack of evidence to support PREPA's proposed changes to net metering. His testimony is based on years of experience integrating renewables to PREPA's grid. His projects extend from large utility scale photovoltaic systems, including the first ever built on the island, down to industrial, commercial and hundreds of solar distributed generators. Currently Víctor González has installed over 37 megawatts of renewable energy holding 35 of those in their portfolio, consolidating them as an industry leader.



Puerto Rico Renewable Energy Contractors & Consultants Association (ACONER)

Summary of the Testimony of Edward Previdi, President of ACONER.

This testimony was presented by Eng. Edward Previdi as President of the Puerto Rico Renewable Energy Contractors & Consultants Association (ACONER). ACONER pursued to enter in this rate review process as an intervenor in order to offer with the primary objective of avoiding that this industry is adversely affected with a new rate structure. From the inception of Act 114 of 2007, which ordered PREPA to establish a net-metering program, Puerto Rico's government policy has been of support to the integration of distributed renewable energy sources. Act 114-2007, as amended by Act 4-2016, specifically states that PREPA and the Puerto Rico Energy Commission (PREC), when proposing and evaluating charges to net metering customers, shall take into account that they are not "excessive or established in such a manner as to constitute an obstacle to the implementation of renewable energy projects". The intention of the rate review legislation was to establish a just and reasonable structure, at the lowest possible cost for all customers but that it would never negatively affect the renewable energy industry.

The viability of the distributed renewable energy market directly depends on the net-metering credit provided by PREPA. PREPA's rate proposal negatively affects the viability of a customer to implement capital improvements through renewable energy sources. Two tendencies, both with the net result of reducing the net-metering credit, stand out: (1) It is proposed that the CILT and Subsidies segregated charges would not be applied to the net-metering credit, and (2) on the four main categories the intended rate structure is one in which the fixed costs, or demand charges, are dramatically increased. A Return-On-Investment (ROI) analysis acquisition of a DG system by customers for the four main categories showed that the application of the credits to net-metering customers as proposed by PREPA would negatively add years to the ROI, ranging from 1.9 years for the acquisition of a system by a GSS customer to 4.4 years by a GSP customer. In order to minimize the negative impact in the renewable distributed energy market, ACONER recommends the following changes to the proposed rate structure: (1) Charges for CILT and subsidies would be billed for net consumption; (2) the basic fixed charges for GRS and GSS would remain the same as under the existing rate structure and the proposed energy consumption rates shall be adjusted accordingly; and (3) the demand charges for GSP and GST shall be kept at the current levels, and the energy consumption charge adjusted accordingly. Besides minimizing the negative impact on renewable energy projects, the basic reasons for those proposed changes to this rate review are: (1) DG penetration in the grid is still at a minimum level; (2) PREPA would still have the opportunity to propose changes in the way DG systems are treated in future rate review processes; (3) the reduction of energy consumption rates by increasing fixed and demand charges would result in discouraging energy efficiency and conservation measures by the customers; (4) although one of PREPA's argument for the proposed treatment to distributed renewable generation is to minimize the effect of remaining customers "subsidizing" net metering customers, ACONER's own calculations using data provided by PREPA show that such impact would actually be minimal; and (5) a series of benefits to the environment, health, etc., which are obtained by generating clean energy as an alternative to fossil fuels, have not been quantified. ACONER therefore



recommended a comprehensive study to quantify the benefits for PREPA, and for the public, of distributed generation with renewable energy sources.

Summary of the Testimony of Vicente Feliciano, expert witness of ACONER.

PREPA needs to pay for its operating expenses, new investments and financial expenses. Anything beyond this is a tax on electricity consumption. PREPA is requesting the PREC \$503 million to pay for the RSA plus \$314 million to pay for the debt that is not part of the RSA for a total of \$817 million in annual financial costs. The argument is that a government-owned utility should be assigned whatever it needs to pay its debts and that rates should increase to whatever it takes to pay such debt. Under normal circumstances, this would be the case but Puerto Rico is currently anything but normal. An investor-owned utility shall be assigned by a regulator what is known as a cost of service finance allocation. This would be the assets of the utility times a reasonable rate of return. In the case of PREPA, it would be \$6,782 million in assets times 7.8% cost of capital. This 7.8% is the average cost of capital assigned to U.S. utilities over the last five years. The total would amount to \$529 million per year. The difference between the \$817 million to pay for whatever is owed and the \$529 million that would be the reasonable financial cost of an investor-owned utility is a tax on electricity consumption. The tax on electricity consumption would be \$288 million per year.

Supporting renewable energy is the stated policy of the Government of Puerto Rico. Some adjustments should be made. Renewable energy has benefits that are not incorporated into the net metering credit. These relate to the environment, health and others. And yet, there was not an attempt by the advisors to the Commission to incorporate this consensus into the net metering credit. One option would be to offer net metering clients credit for subsidies to residences and the irrigation district in lieu of environmental and health credits. The issue of the transition charge, related to debt to pay for fixed assets that are either not used by the net metering customers or used on a limited basis, is something that the Commission should revisit.

Sunnova

Summary of the Testimony of Steven Gabel.

Sunnova sponsored the testimony of Steven Gabel. Mr. Gabel's pre-filed testimony reviewed certain tariff and policy recommendations proposed by PREPA with respect to a) their reasonableness from a ratemaking perspective; b) their impact on the development of renewable resources in the PREPA service territory; and c) their consistency with established Puerto Rico and national energy policy. Mr. Gabel recommended various adjustments to PREPA's petition including:

- 1) Current Net Energy Metering (NEM) should continue and the Commission should make no changes to NEM. The proposed change in NEM policy will deter development of on-site renewable energy as a "home grown" clean source of free



fuel energy for the Commonwealth, while lessening the dependence on imported fossil fuel and inhibiting efforts to diversify the Commonwealth's energy supply.

- 2) The Commission should carefully evaluate and restrict proposals from PREPA to move its tariff to a greater proportion of revenue through fixed charges, as counter to both cost of service principles and the Commission's mandate to promote renewable energy and energy efficiency.

Finally, Mr. Gabel recommended that the Commission should conduct a more expansive review of PREPA's structure and ratemaking. He recommended that the Commission should consider broader changes to industry structure and ratemaking that would transition the power system to one that is more reliable; stabilizes and reduces energy costs; promotes development of renewable energy, energy efficiency and other advanced clean energy technologies; attracts private sector investment; and increases economic activity.

Chamber of Commerce

Summary of the Testimony of Eng. Gerardo Cosme Núñez.

The Chamber of Commerce witness testimony served to present an assessment of the perception of some aspects about the rate review. The testimony states that the proposed distribution of revenue requirements presented by PREPA is not just and reasonable and that the Commission should consider other income sources from the commercial and industrial sectors, aside from the energy charge, in order to develop a Cost of Service Study. Also the witness expresses that there is no clear indication as to how PREPA projected its revenues from 2014 to 2017.

Builders Association "ACPR"

Summary of the Testimony of Emilio Colón Zavala.

The testimony of Mr. Colón Zavala served to expose and submit to the Commission, from ACPR's perspective, the impact of the tariff review proposal over the development, planning and financing of formal housing, within the jurisdiction of Puerto Rico. This in light of the legal and economic context ACPR deem pertinent and relevant, particularly to the development of low-income housing.



Hospital Association "AHPR"

Summary of the Testimony of Jaime Gregorio Plá Cortés.

The testimony of Mr. Plá Cortés served to present the implications of matters deriving from the rate review together with the "hijack" fee proposed by PRPEA, which, in AHPR's opinion, and as to what is reflected in the documentation received by its members, would entail significant increases in non-refundable costs at a time when said industry is in the fragile situation of providing health services in Puerto Rico. In the case of the hospitals and health services, they will not be able to pass on this increase. In an industry that is so competitive that can barely cover costs, an increase would cause it to incur further losses.

Manufacturer's Association "AIPR"

Summary of the Testimony of Rodrigo Masses and Artze.

Mr. Masses and Artze testimony responds to the need of proving the future effects of the distribution of costs proposed in the manufacturing sector of Puerto Rico, to establish the potential impact of the rate revisions as proposed in the economic development of the country and the non-compliance of Law 57 of May 22, 2014, known as the "Law of Transformation and Energy RELIEF of Puerto Rico" (hereinafter law 57-2014).



Summary of Public Comments

To maximize public participation and insight to the process, the Commission held four (4) public hearings during the initial phases of the proceeding. To provide further access to interested parties, all hearings were held in Spanish, three (3) hearings were held outside the metropolitan area and one (1) in San Juan, during flexible hours, and were also live streamed and recorded. The first hearing was held on September 10, 2016 in the City of Mayagüez. A total of nine (9) participants deposed before the Commission. The second public hearing was held on September 12, 2016 in the City of Ponce. A total of eight (8) participants deposed before the Commission. The third hearing was held on September 13, 2016 in the City of Humacao. One (1) participant deposed before the Commission during this hearing. The fourth and last hearing was held on September 14, 2016 in the City of San Juan with a total of ten (10) participants deposing before the Commission.

During these hearings, the Commission heard comments from the public regarding a long list of concerns, which included the following issues.

There was a common and general discomfort and negative perception of PREPA's management and performance. Citizens were generally concerned that an increase in rates, without significant restructuring and changes in management practices, will perpetuate the current precarious fiscal and structural situation of the utility. Overall, the citizens' discomfort and apprehensions are not related to a specific part of PREPA's Petition for Rate Review, but with distrust, a result of years of poor decision making, bad management, political influence and lack of planning. In their perspective, moving forward, mechanisms need to be implemented to hold PREPA accountable for its actions. Additionally, as expressed by the organization *Espacios Abiertos*, there needs to be transparency in the information presented by PREPA as part of their Petition. They requested that PREPA clearly explain how the proposed revenue requirement will be used to improve PREPA's operations, efficiency and the overall performance of the organization, given that as proposed it would result in a rate increase for the consumers.

In improving their performance and securing additional savings to reduce the costs of operating the utility, as part of the comments and recommendations presented to the Commission, citizens expressed that PREPA could continue to make operational savings by reducing the number of external legal and consulting contracts and using their internal personnel. *Espacios Abiertos* expressed that even though specialized consulting is warranted, Puerto Rico and PREPA's fiscal situation does not merit the elevated consultation costs incurred by PREPA.

Also, citizens argued that, in reviewing PREPA's Petition, the Commission cannot limit itself to perform an economic analysis, which only secures revenues to sustain the utility and address its financial obligations. Citizens agree that the Commission needs to perform an evaluation of social needs, which includes an analysis of factors that guarantee the social development of the Island, while it addresses Puerto Rico's electric energy needs. The foregoing in the context that the current social and economic conditions of Puerto Rico's



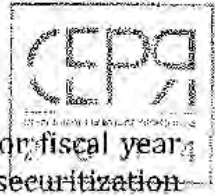
citizens cannot sustain an increase in rates and therefore, the distribution of costs needs to consider the overall impact such increase will have on Puerto Rico's economy and its society. Citizens agree that the burden of restructuring PREPA and taking it to fiscal stability should not be carried by the citizens, but that the utility's management and government should be held accountable for the current situation.

Many deponents also address the need to integrate renewables into PREPA's system. Citizens expressed that the Commonwealth's current energy policy promotes the integration of renewables, which so far has been hindered by PREPA. Citizens stressed that the integration of renewables is fundamental to the development of Puerto Rico's electric energy system and that the social benefits provided by such integration surpass the renewable energy system costs. It was expressed that no additional charges should be applied to net metering clients to promote and incentivize the integration of renewables. Therefore, deponents argued that while the current penetration of renewables is minimal, the costs associated with it should be distributed to other customers. They understand this way Puerto Rico's public policy is accomplished and the distribution of costs is warranted by the benefits provided by the integration of renewables.

Finally, National Public Finance Guarantee Corporation ("National") expressed its concern with regards to PREPA's revenue requirement not including the part of PREPA's legacy debt included in the Restructuring Support Agreement ("RSA").³⁴⁸ Specifically, National expressed its concern regarding the current status of the transition charge.³⁴⁹ As part of the agreement, several conditions and milestones set forth in the RSA need to be met, and accordingly none of those bonds have yet been defeased as part of the securitization. National's concern arises from PREPA's testimony expressing that there is a high probability that the securitization will not happen before the Commission issues its final order in the instant case. Therefore, National requests that the Commission account for all PREPA's

³⁴⁸ National submitted its letter to the Commission after the evidentiary hearing had ended. National was not an intervenor in the proceeding; therefore, other parties had no opportunity to question National witnesses. Under these circumstances, the Commission therefore cannot treat National's submission as technical evidence. The Commission has, however, taken into account bondholder concerns by including in its revenue requirement a reasonable projection of legacy debt and coverage ratio in this proceeding, and by approving the Calculation Methodology and Adjustment Mechanism in the Transition Charge proceeding. When the bondholders and PREPA reach an agreement on the amount of debt to be recovered through the Transition Charge, the Commission will be prepared, on request, to make appropriate adjustments to PREPA's revenue requirement.

³⁴⁹ The calculation methodology and adjustment mechanism for the transition charge was approved by the Commission on June 21, 2016 in docket number CEPR-AP-2016-0001. This transition charge mechanism is designed to reduce costs for PREPA's customers. Bondholders holding approximately \$7.170 billions of existing PREPA debt, with an estimated weighted average interest rate of 5.86 percent, have agreed to reduce that debt. By means of the transition charge, the existing debt will be replaced by "Restructured Debt".



currently non-defeased debt obligations³⁵⁰ in PREPA's revenue requirement for fiscal year 2017 and corresponding base rates. National recommends that once the securitization process becomes effective, the base rates can be adjusted downward to reflect the discount achieved through the restructuring.³⁵¹

³⁵⁰ Debt held by creditors participating in the securitization and creditors not participating in the securitization.

³⁵¹ While it is true that the debt that has not been defeased through the securitization process is still part of PREPA's obligations, which must be covered by its rates, it is also true that while the RSA is still in effect, PREPA's obligation to pay such debt is deferred. It is such deferral of the obligation that exempts PREPA from including the debt comprised in the RSA in the revenue requirement for fiscal year 2017 ("FY2017"). Therefore, although both presumptions are true (that the debt is still PREPA's obligation, but there is no obligation to pay for it in 2017) there is a common overall expectation recognized by PREPA and intervenors participating in this proceeding that the restructuring of the debt, as set forth in the RSA, will proceed. Consequently, for the purpose of the revenue requirement for FY2017, the Commission assumes that the payment for the debt included in the RSA is not an expected expense for 2017.



Attachment 1: Determination of Total Revenue Requirement and Change in Base Rates

Puerto Rico Electric Power Authority
Determination of Total Revenue Requirement and Change in Base Rates
(Thousands of Dollars)

Commission Attachment 1
Page 1 of 1

Line No.	Description	PREPA Proposed FY2017 (A)	Commission Adjustments (B)	Total Adjusted Results (C)	Base Rates: Commission Adjusted Results (D)	Adjusted FY2017 Fuel and Purchased Power Adjustor Revenue & Expense (E)
1	Operating Expenses					
2	Fuel	\$ 855,968	\$ 461,305	\$ 1,317,273		\$ 1,117,273
3	Purchased Power	\$ 819,907	\$ -	\$ 819,907		\$ 819,907
4	Generation Expenses	\$ 122,411	\$ 30,549	\$ 152,960	\$ 152,960	
5	Transmission Expenses	\$ 34,222	\$ 3,913	\$ 38,136	\$ 38,136	
6	Distribution Expenses	\$ 169,277	\$ 19,001	\$ 188,281	\$ 188,281	
7	Customer Billing Expenses	\$ 84,945	\$ 389	\$ 85,334	\$ 85,334	
8	Administrative and General Expenses	\$ 140,897	\$ (16,602)	\$ 124,295	\$ 124,295	
9	Bad Debt Expense	\$ 85,384	\$ 12,000	\$ 97,384	\$ 97,384	
10	Energy Administration Assessment	\$ 5,800	\$ (5,800)	\$ -	\$ -	
11	Subtotal Operating Expenses	\$ 2,126,811	\$ 584,759	\$ 2,711,570	\$ 694,390	\$ 1,937,180
12						
13	Subsidies					
14	Energy Administration Assessment		\$ 5,800	\$ 5,800	\$ 5,800	
15	Contribution to Municipalities (CILT)	\$ 51,784	\$ -	\$ 51,784	\$ 51,784	
16	Public Lighting	\$ 93,241	\$ -	\$ 93,241	\$ 93,241	
17	Special Customer Subsidies	\$ 75,071	\$ (37,170)	\$ 37,901	\$ 37,901	
18	Subtotal Subsidies	\$ 220,096	\$ (31,370)	\$ 188,726	\$ 188,726	
19						
20	Debt Service (Principal & Interest)	\$ 314,390	\$ -	\$ 314,390	\$ 314,390	
21	Debt Service Coverage		\$ 125,756	\$ 125,756	\$ 125,756	
22	Subtotal Debt Service and Coverage	\$ 314,390	\$ 125,756	\$ 440,146	\$ 440,146	
23						
24	Ratepayer Funding of Capital Expenditures	\$ 336,558	\$ (183,096)	\$ 153,462	\$ 153,462	
25						
26	Subtotal PREPA Base Rate Revenue Requirement	\$ 2,997,855	\$ 416,049	\$ 3,413,904	\$ 1,476,724	
27						
28	Revenue and Other Income					
29	Other Income	\$ (30,925)	\$ -	\$ (30,925)	\$ (30,925)	
30	Fuel and Purchased Power Adjustor Revenue	\$ (1,534,287)	\$ (461,305)	\$ (2,419,532)	\$ (188,412)	\$ (1,937,180)
31	Base Rate Revenue at Current Rates	\$ (1,078,387)	\$ -	\$ (1,078,387)	\$ (1,078,387)	
32	Subtotal Revenue and Other Income	\$ (2,775,599)	\$ (461,305)	\$ (3,236,904)	\$ (1,297,724)	\$ (1,937,180)
33						
34	PREPA Base Rate Revenue Deficiency (Excess)	\$ 222,256	\$ (45,256)	\$ 177,000	\$ 177,000	\$ -
35						
36	PREPARC Securitization (Transition Charge) Revenue Requirement - Note [b]					
37	Debt Service for Securitization	\$ 394,237	\$ -	\$ 394,237		
38	Gross-Up for Collections Lag and Uncollectible Revenue	\$ 109,027	\$ -	\$ 109,027		
39	PREPARC (SPV) Revenue Requirement	\$ 503,264	\$ -	\$ 503,264		
40						
41	Total PREPA and PREPARC Revenue Requirements	\$ 3,501,119 [a]	\$ 416,049	\$ 3,917,168		

Notes and Sources

Col.A: PREPA Schedule A-1 REV with reclassification of selected items for presentation clarity

[a] PREPA shows this amount on its Schedule A-1 REV net of PREPA's Other Income:

Total PREPA and PREPARC Revenue Requirements	\$ 3,501,119	Line 40
Other Income	\$ (30,925)	Line 28
Total PREPA and PREPARC Revenue Requirements per PREPA	\$ 3,462,194	PREPA Schedule A-1 REV

[b] The method for determining the PREPARC revenue requirement for the new securitized bonds to be issued and the method for determining the Transition Charge rates related to that was addressed and approved by the Commission in Case No. CEPR-AP-2016-0001.

Col.B: See Commission Attachment 2 for a summary of adjustments and Commission Attachment 3 for additional details.

Col.D and E: The Commission has determined that PREPA's fuel and purchased power expenses will be collected through the fuel and purchased power adjustors.



Attachment 2: Summary of Commission Adjustments to FY2017 Revenue Requirement

Public Service Electric Power Authority
Summary of Commission Adjustments to FY2017 Revenue Requirement

Commission Attachment 2
Page 1 of 1

(Thousands of Dollars)

Line No.	Description	Total Commission Adjustments (A)	Debt Service Coverage Ratio Margin (B)	Ratepayer Contributions for FY2017 Capital Funding (C)	Reclassification of FY2017 Capital Generation Maint. Exp. (D)	Special Customer Subsidies (E)	Total Expense Forecast (F)	Operating Expense Needed for Safe & Reliable Operation (G)	Rises and Penalties Expense Not Incurred (H)	Net Debt Expense (I)	Reconciliation Fee Revenue (J)	Subsidies and Expenses (K)
1	Operating Expenses											
2	Fuel	\$ 461,305					\$ 461,305					
3	Purchased Power	\$ -										
4	Generation Expenses	\$ 39,545			\$ 16,000		\$ 14,175				\$ 374	
5	Transmission Expenses	\$ 3,913					\$ 3,931				\$ 105	
6	Distribution Expenses	\$ 14,604					\$ 14,687				\$ 517	
7	Customer Billing Expenses	\$ 309									\$ 260	\$ 329
8	Administrative and General Expenses	\$ (16,602)					\$ (17,751)				\$ 355	
9	Bad Debt Expense	\$ (2,500)							\$ 12,000			
10	Energy Administration Agreement	\$ (5,000)										\$ (5,000)
11	Subtotal Operating Expenses	\$ 504,759	\$ -	\$ -	\$ 16,000	\$ -	\$ 461,305	\$ 19,411	\$ -	\$ 12,000	\$ 1,711	\$ (1,673)
12												
13	Subsidies											\$ 2,430
14	Energy Administration Agreement	\$ 5,000										
15	Construction Municipalities (CUT)	\$ -										
16	Public Lighting	\$ -										
17	Special Customer Subsidies	\$ (17,376)				\$ (37,811)						\$ (3,391)
18	Subtotal Subsidies	\$ (17,376)	\$ -	\$ -	\$ -	\$ (37,811)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (3,391)
19												
20	Debt Service (Principal & Interest)	\$ -										
21	Debt Service Coverage	\$ 125,756	\$ 125,756									\$ 5,441
22	Subtotal Debt Service and Coverage	\$ 125,756	\$ 125,756	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
23												
24	Ratepayer Funding of Capital Expenditures	\$ (183,096)		\$ (183,096)								
25												
26	Subtotal PRFPA Base Rate Revenue Requirement	\$ 410,247	\$ 125,756	\$ (183,096)	\$ 16,000	\$ (37,811)	\$ 401,305	\$ 19,411	\$ -	\$ 12,000	\$ 1,711	\$ (259)
27												
28	Revenue and Other Income											
29	Other Income	\$ -										
30	Fuel and Purchased Power Adjusted Revenues	\$ (161,305)					\$ (161,305)					
31	Base Rate Revenues at Current Rates	\$ -										
32	Subtotal Revenue and Other Income	\$ (161,305)					\$ (161,305)					
33												
34	PRFPA Base Rate Revenue Deficiency (Excess)	\$ (51,058)	\$ 125,756	\$ (183,096)	\$ 16,000	\$ (37,811)	\$ -	\$ 19,411	\$ -	\$ 12,000	\$ 1,711	\$ (215)
35												
36	PRFPA Securitization (Transaction Charge) Revenue Requirement											
37	Debt Service for Securitization	\$ -										
38	Make-Up for Collections Lag and Uncollected Revenue	\$ -										
39	PRFPA (LTV) Revenue Requirement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
40												
41	Total PRFPA and PRFPA Revenue Requirement	\$ 410,247	\$ 125,756	\$ (183,096)	\$ 16,000	\$ (37,811)	\$ 401,305	\$ 19,411	\$ -	\$ 12,000	\$ 1,711	\$ (259)

Notes and Source

- Grid A: Summary of Adjustments accepted by the Commission
 Column (I) through (K): See Commission Attachment 3 (with explanatory notes and Grids A through C) for details. The Commission's decision on the Revenue Requirement is based on the information provided in Attachment 3, page 7.
 Note A: PRFPA indicated during the hearing that, should any adjustment to the revenue requirement be made, it would be applied to the revenue requirement.
 Note B: Applied to the amount of the Commission's decision on the revenue requirement.



Attachment 3: Commission Adjustments to FY2017 Revenue Requirements

Puerto Rico Electric Power Authority
Commission Adjustments to FY2017 Revenue Requirements

Commission Attachment 3
Page 1 of 10

Reflect Debt Service Coverage
(Thousands of Dollars)

Line No.	Description	Amount (A)	Reference
	Calculation of Debt Service Coverage		
1	PREPA Debt Service (Principal and Interest)	\$ 314,390	PREPA Schedule A-1 REV
2	Debt Service Coverage Ratio	1.4 x	Commission Advisor Hill
3	Debt Service Coverage	<u>\$ 440,146</u>	
	Summary		
4	PREPA Debt Service (Principal and Interest)	\$ 314,390	Line 1
5	Debt Service Coverage Margin	\$ 125,756	Line 3 - Line 1
6	Total Debt Service and Debt Service Coverage	<u>\$ 440,146</u>	
7	Adjustment to Provide for 1.4x Debt Service Coverage Margin	<u>\$ 125,756</u>	Line 5

Notes and Source

This adjustment is to recognize a Debt Service Coverage Ratio (DSCR) margin based on the DSCR recommendation of Commission Advisor Stephen Hill.



Commission Attachment 3
Page 2 of 10

Puerto Rico Electric Power Authority
Commission Adjustments to FY2017 Revenue Requirements

Adjust Amount of Ratepayer Contributions for FY2017 Capital Expenditure Funding
(Thousands of Dollars)

Line No.	Description	Amount (A)	Reference
1	PREPA Requested Ratepayer Funding of FY2017 Capital Expenditures	\$ 336,558	PREPA Schedule A-1 REV
2	Commission Advisor Adjustments Adjust for amount recognized in DSCR Margin	\$ (125,756)	Note A
3	Limit Ratepayer Funding of Aguirre Offshore Gas Port (AOGP) in FY2017 to amount approved in the Commission's IRP Order	\$ (41,340)	Note B
4	Adjust PREPA FY2017 Capital Expenditures for Meters (PIV 16677)		Note C
Reclassify Certain PREPA Capital Expenditures as Generation O&M Expense:			
	PREPA PIV # Description		
5	15880 Major Inspection "C" Unit 1-3 Cambalache	\$ (4,000)	Note D
6	16945 Combined Cycle Improvement U-5 San Juan Steam Plant	\$ (6,000)	Note D
7	16946 Combined Cycle Improvement U-6 CSJ	\$ (6,000)	Note D
8	Total Commission Advisor Adjustments to Ratepayer Funding of FY2017 CapEx	\$ (183,096)	Sum of lines 2 through 6
9	Adjusted Ratepayer Funding of PREPA FY2017 Capital Expenditures	\$ 153,462	Note E

Notes and Source

This adjustment reflects Commission Advisor adjustments to the amount of PREPA's requested FY2017 ratepayer funding of Capital Expenditures

(A) A portion of PREPA's proposed FY2017 Capital Expenditures is covered by the DSCR margin recommended by Commission Advisor Hill See page 1 of this schedule.

(B) Commission Advisors Fisher and Horowitz recommend limiting FY2017 capital expenditures for the AOGP to the amount allowed in the Commission's IRP Order:

	Amount in Dollars	Reference
PREPA Proposed FY2017 Capital Expenditures for AOGP	\$ 56,339,808	PREPA Schedule P-3 REV
AOGP capital spending authorized in the Commission's IRP Order	\$ 15,000,000	Fisher/Horowitz Expert Report
FY2017 AOGP capital expenditure adjustment	\$ 41,339,808	Fisher/Horowitz Expert Report

(C) Commission Advisors Fisher and Horowitz recommend limiting PREPA's Capex for FY2017 capital expenditures from capital to exclude an amount of costs that is estimated for AMI meters. The Commission did not accept that adjustment.

(D) Commission Advisors Fisher and Horowitz recommend reclassifying certain FY2017 capital expenditures from capital to generation O&M. This reflects such reclassification of the following PREPA proposed FY2017 capital expenditures:

(E) Having current year ratepayer funding of PREPA's Capital Expenditures is not recommended as a permanent component of PREPA's revenue requirement methodology. As explained in the Hill and Smith/Dady reports, including this as a component of PREPA's base rate revenue requirement should only continue until PREPA has restored financial viability and can access external capital markets at reasonable cost to finance its CapEx. At that point, PREPA debt service and a DSCR would continue to be included in the determination of PREPA's base rate revenue requirement, and the special ratepayer-funding of CapEx would cease.



Commission Attachment 3
Page 3 of 10

Puerto Rico Electric Power Authority
Commission Adjustments to FY2017 Revenue Requirements

Reflect Reclassification of Certain PREPA Proposed FY2017 Capital Expenditures to Generation Maintenance Expense
(Thousands of Dollars)

Line No.	Description	Amount (A)	Reference
Reflect Reclassification of Certain PREPA Proposed FY2017 Capital Expenditures to Generation Maintenance Expense to Increase Generation Maintenance Expense			
	<u>PREPA Project (PIV)</u>		
1	15880 Major Inspection "C" Unit 1-3 Cambalache	\$ 4,000	Note A
2	16945 Combined Cycle Improvement U-5 San Juan Steam Plant	\$ 6,000	Note A
3	16946 Combined Cycle Improvement U-6 CSJ	\$ 6,000	Note A
4			
5	Increase to Generation Maintenance Expense for Reclassification	<u>\$ 16,000</u>	

Notes and Source

This adjustment reflects Commission Advisor adjustments to the amount of PREPA's requested FY2017 ratepayer funding of
Capital Expenditures

[A] Commission Advisors Fisher and Horowitz recommend reclassifying certain FY2017 capital expenditures from capital to
generation U&M. This reflects such reclassification of the PREPA proposed FY2017 capital expenditures listed above

Additional source for dollar amounts: PREPA Schedule R-3 RBV



Commission Attachment 3
Page 4 of 10

Puerto Rico Electric Power Authority
Commission Adjustments to FY2017 Revenue Requirements

Remove Double-Count of Special Customer Subsidies and Revenue at Current Rates
[Thousands of Dollars]

Line No.	Description	Amount (A)	Reference
	Special Customer Subsidies		
1	General Agricultural Service Tariff	\$ (525)	Note A
2	Low-Income Consumer Subsidies (RH3, LRS), and	\$ (16,439)	Note A
3	Fixed Public Housing Rate (RFR Tariff)	\$ (20,077)	Note A
4	Adjustment to Special Customer Subsidies	\$ (37,041)	Notes A and B

Notes and Source

[A] This adjustment reflects an adjustment identified by Commission Advisor Chernick to remove a double-count identified in PREPA's filing of certain Special Customer Subsidies and Revenue at Current Rates.

Commission Advisor Chernick has identified the following double counts in his detailed review of PREPA's proposed Special Customer Subsidies and PREPA's revenue at existing rates:

Amount (in dollars)	Rates Affected by the Rate Discount
\$524,933	for the General Agricultural Service Tariff,
\$16,438,851	for Low-Income Consumer Subsidies (RH3, LRS), and
\$20,076,641	for the Fixed Public Housing Rate (RFR Tariff)
<u>\$37,040,425</u>	Total amount counted by PREPA in Special Customer Subsidies and reflected by PREPA in revenue at current rates

[B] An alternative way of removing the impact of the double-count identified by Commission Advisor Chernick would be to add the dollar amount identified above to PREPA's base rate revenue at current rates.



Puerto Rico Electric Power Authority
Commission Adjustments to FY2017 Revenue Requirements

Commission Attachment 3
Page 5 of 10

Adjust Fuel Expense Forecast
(Thousands of Dollars)

Line No.	Description	Amount (A)	Reference
1	Fuel Expense	\$ 461,305	Note A
2	Fuel Adjustor Revenue	\$ (461,305)	Note B
3	Not Impact on Base Rate Revenue Requirement	\$	Notes A and B

Notes and Sources

- [A] This adjustment reflects an adjustment to Fuel Expense recommended by Commission Advisors Horowitz and Fisher
- [B] Because PREPA's Fuel Adjustor will be recovering fluctuations in Fuel Expense via its Fuel Adjustor an equal amount is being added to Fuel Revenue. Currently, PREPA's Fuel Adjustor recovers more than the Fuel Expense due to the inclusion of a 0.89 factor in the denominator; however, under both PREPA's recommendation and the Commission Advisors' recommendations, that factor (for CILT) is being removed from PREPA's Fuel (and Purchased Power) Adjustors, prospectively, effective with the new base rates established in the current PREPA rate case
- [C] The Commission has determined that PREPA will recover its Fuel Expenses through the Fuel Adjustor and its Purchased Power Expenses through the Purchased Power Adjustor, rather than recovering a base amount of Fuel and Purchased Power Expense through Base Rates



Puerto Rico Electric Power Authority
Commission Adjustments to FY2017 Revenue Requirements

Commission Attachment 3
Page 6 of 10

Adjust Operating and Maintenance Expense for Synapse Recommended Levels for Safe and Reliability Operation of the Electric Utility
(Millions of Dollars)

Line No.	Description	Labor Expense (A)	Non-Labor Expense (B)	Total Operating Expenses (C)
1	Generation Expense	\$ 9.680	\$ 4.495	\$ 14.175
2	Transmission Expense	\$ 3.330	\$ 0.479	\$ 3.809
3	Distribution Expense	\$ 16.115	\$ 2.372	\$ 18.487
4	Administrative and General Expense	\$ (17.057)		\$ (17.057)
5	Net Impact on Base Rate Revenue Requirement	\$ 12.068	\$ 7.346	\$ 19.414

Notes and Source

- [A] This adjustment reflects an adjustment to PREPA's proposed FY2017 Operating Expenses recommended by Commission Advisors Horowitz and Fisher to assure that there is an adequate O&M Expense budget for the safe and reliable operation of the electric system.



Puerto Rico Electric Power Authority
Commission Adjustments to FY2017 Revenue Requirements

Commission Attachment 3
Page 7 of 10

Remove Budgeted FY2017 Expense Amount for Fines and Penalties
(Millions of Dollars)

Line No.	Description	Operating Expense Adjustment	Reference
1	Administrative and General Expense	Note A	PREPA Response to CEPR-RS-05-31

Notes and Source

PREPA's response to CEPR-RS-05-31 indicates that for FY2017 PREPA budgeted \$624,446 in account 923 for the concept of stipulated fines and penalties that may occur for non-compliance with federal and state environmental laws and regulations. PREPA's response to CEPR-RS-05-32, however, indicates that for FY2017 PREPA has not received any notifications of related to environmental deviations or other matters.

Note A: PREPA indicated during the hearing that it had not included any amount for fines or penalties in its FY2017-based revenue requirement, so there is no need for this adjustment.



Puerto Rico Electric Power Authority
Commission Adjustments to FY2017 Revenue Requirements

Commission Attachment 3
Page 8 of 10

Bad Debt Expense
(Thousands of Dollars)

Line No.	Description	Amount (A)	Reference
	Commission Advisor Adjustments to Net Revenue Requirement		
1	Total Commission Advisor Adjustments on Net Revenue Requirement	\$ 404,049	See below
2	Uncollectible Factor	2.97%	PREPA Filing Detail
3	Bad Debt Expense	\$ 12,000	Note A

Notes and Source

This adjustment is to recognize the impact on Bad Debt Expense from the Commission's other adjustments to PREPA's net revenue requirement.

	Adjustments from Commission Attachment 2, Line 25	Amount
4	Debt Service Coverage Ratio Margin	\$ 125,756
5	Adjust Amount of Ratepayer Contributions for FY2017 Capital Expenditure Funding	\$ [183,096]
6	Reflect Reclassification of Certain PREPA Proposed FY2017 Capital Expenditures to Generation Maintenance Expense	\$ 16,000
7	Remove Double-Count of Special Customer Subsidies and Revenue at Current Rates	\$ (37,041)
8	Adjust Fuel Expense Forecast	\$ 461,305
9	Adjust Operating and Maintenance Expense for Synapse Recommended Levels for Safe and Reliability Operation of the Electric Utility	\$ 19,414
10	Remove Budgeted FY2017 Expense Amount for Fines and Penalties	\$ -
11	Puerto Rico Electric Power Authority	\$ 1,711
12	Total Commission Advisor Adjustments on Net Revenue Requirement	\$ 404,049

Note A: The impact on Bad Debt Expense has been recalculated to reflect the impact of the Commission's decisions on other adjustments.



Commission Attachment 3
Page 9 of 10

Puerto Rico Electric Power Authority
Commission Adjustments to FY2017 Revenue Requirements

Reconnection Fee Revenue - Impact on PREPA's FY2017 Operating Expenses if the Reconnection Fee (increase is held to the Cost of Reconnection)

Line No.	Description	Totals (A)	Increase (B)	Reference
I. Annual Revenue from Reconnection Fee as Estimated by PREPA				
	Annual revenue for reconnection fee:			
1	at current tariff	\$ 5,100,000		
2	at cost-based rates	\$ 10,646,760	\$ 5,546,760	CEPR-RS-05-21(d)
3	at PREPA proposed rates (which would be beyond PREPA's cost)	\$ 15,780,060	\$ 10,200,000	CEPR-RS-05-21(d)
4	Ratio (Revenue increase at above cost rates vs revenue increase at cost-based rates)		0.5438	Line 2 / Line 3
II. Adjustments to Remove Above Cost Portion				
5	Above cost portion		0.4562	1 - cost ratio [on line 4]
6	Increasing Reconnection Charges - reflected for FY2017 by PREPA		\$ 3,750,000	CEPR-RS-01-14 & PREPA summary of Customer Service Performance Improvements Also see Table below
7	Removal of above-cost portion - applied to \$3.75 million assumed by PREPA PREPA reflected the \$3.75 million as a reduction to expense - removal of the above-cost portion thus increases PREPA's proposed expenses		\$ 1,710,750	Line 5 x Line 6

III. Adjust FY2017 Expenses in same manner that PREPA Reflected the "Customer Service Performance Improvements" in its Revenue Requirement Calculation

Component	Source for percentages	Percent (C)	Expense Adjustment (Dollars) (D)	Expense Adjustment (\$000) (E)
8	Smith-Dady Report page 34, Table 12 and PREPA's Rate Case Financial Model - see below	21.07%	\$ 374,119	\$ 374
9		6.11%	\$ 104,532	\$ 105
10		30.24%	\$ 517,356	\$ 517
11		15.18%	\$ 259,614	\$ 260
12		26.60%	\$ 455,069	\$ 455
13	Total Adjustment to Expenses	100.00%	\$ 1,710,750	\$ 1,711

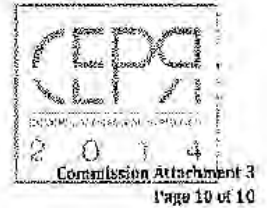
IV. Referenced Tables from Smith-Dady Report

Percentage of FY2014 O&M Expense by Category		To Col. C Above	
Description	FY2014	Ratio	
Generation Expenses	\$ 160,541,902	21.87%	
Transmission Expenses	\$ 44,002,530	6.11%	
Distribution Expenses	\$ 223,007,607	30.24%	
Customer Billing Expenses	\$ 111,405,645	15.18%	
Administrative and General Expenses	\$ 195,279,419	26.60%	
Total	\$ 734,117,103	100.00%	
Source: PREPA's Rate Case Financial Model			
Smith-Dady Report page 34, Table 12			

Summary of Non-Fuel Performance Improvements

Description	Amount
Customer Service	
Increasing Disconnection Costs	\$ 3,750,000
Theft Recoveries and Reduced T&D Loss	\$ 20,000,000
Total Customer Service Related Savings	\$ 23,750,000
Procurement	
Fleet and Shops	\$ 17,500,000
Procurement and Inventory	\$ 37,500,000
Total Procurement Related Savings	\$ 55,000,000
Other (Net)	
Medical Benefit Savings	\$ 14,000,000
Headcount Reduction	\$ 10,000,000
Total Other (Net) Related Savings	\$ 24,000,000
Total Non-Labor Performance Improvements	\$ 102,750,000
Smith-Dady Report page 33, Table 11	

To Line



Puerto Rico Electric Power Authority
Commission Adjustments to FY2017 Revenue Requirements

Reclassification of Energy Commission Assessment and Direct Debit Credit and PREPA Claimed Subsidies Error
(Thousands of Dollars)

Line No.	Description	Total Amount (A)	Subsidies (B)	Operating Expenses (C)	Footnote Reference	Attachment 2 Reference
I. Energy Commission Assessment						
1	Operating Expenses	\$ (5,800)		\$ (5,800)	Note A	Att 2, L.10
2	Subsidies	\$ 5,800	\$ 5,800		Note A	Att 2, L.14
3	Net Adjustment	\$ -			Note A	
II. Direct Debit Credit						
4	Operating Expenses	\$ 129		\$ 129	Note B	Att 2, L.7
5	Subsidies	\$ (129)	\$ (129)		Note B	Att 2, L.17
6	Net Adjustment	\$ -			Note B	
III. PREPA Claimed CLT and Subsidies Pass-Through Error						
7	PREPA Claimed error from Subsidies	\$ -	\$ -		Note C	Att 2, L.17
IV. Net Adjustment						
8	Net Adjustment affecting PREPA's Revenue Requirement	\$ -	\$ 5,671	\$ (5,671)		

Notes and Source

- [A] The Commission has determined that the Energy Commission Assessment will be recovered through the Subsidies Rider (as required by statute).
- [B] The Commission has determined that the Direct Debit Credit is an Operating Expense, not a component of the Subsidies.
- [C] PREPA Brief at 70 claimed that there was a \$643k error. The Commission was not able to verify this and has not accepted this adjustment. The Commission has reconciled the Subsidies amounts as shown on Attachment 4. The Subsidies amounts, as adjusted by the Commission, reconcile to the amount reflected in the revenue requirement without any need for PREPA's claimed correction.



Attachment 4: Contribution in Lieu of Taxes and Subsidies Adjustments

Puerto Rico Electric Power Authority

Commission Attachment 4

Page 1 of 2

Contribution in Lieu of Taxes and Subsidies Adjustments

Summary of PREPA As-Filed Contribution in Lieu of Taxes and Subsidies

Line No.	Description	As filed by PREPA Amount	Per PREPA Filing (in \$000)
1	Contribution to Municipalities	\$ 51,783,821	\$ 51,784
2	Public Lighting	\$ 93,240,901	\$ 93,241
3	Special Customer Subsidies	\$ 75,071,020	\$ 75,071
4	Total	<u>\$ 220,095,742 [A]</u>	<u>\$ 220,096 [A]</u>
5	CHLT Subsidy Recovery in FCA and PPCA	\$ 182,411,548	
6	CHLT Subsidy Recovery Required in Base Rates	\$ 37,685,194	
7	Total	<u>\$ 220,096,742 [A]</u>	

Notes and Source

Source: PREPA Schedules A-1 REV and L-2 (L 000002) FY2017

PREPA response to CEPR-RS-01-11

PREPA Ex. 4.0 at page 11

[A] See Commission Attachment 1, column A, line 18



Puerto Rico Electric Power Authority
Contribution in Lieu of Taxes and Subsidies Adjustments

Commission Attachment 4
Page 2 of 2

Line No.	Subsidies/Credits	PREPA FY 2017 Estimate (A)	Amount in "Subsidy Rider" (B)	Reflected As An Operating Expense (C)	Removed PREPA's Double Count (D)
1	Life-Preserving Equipment	\$ 2,547,894	\$ 2,547,894		
2	General Agricultural Service	\$ 524,933			\$ 524,933
3	Analog Rate	\$ 5,521,495	\$ 5,521,495		
4	Low-Income Tariffs				
5	LRS Tariff	\$ 15,416,766			\$ 15,416,766
6	RH2 Tariff	\$ 1,022,085			\$ 1,022,085
7	Hotel 11% Discount	\$ 5,463,401	\$ 5,463,401		
8	Rural Aqueducts on GRS	\$ 4,220	\$ 4,220		
9	Irrigation District Deficit	\$ 4,152,000	\$ 4,152,000		
10	Residential Fuel Subsidy	\$ 18,630,971	\$ 18,630,971		
11	Condo Common Areas	\$ 1,321,289	\$ 1,321,289		
12	Direct Debit Credit	\$ 129,428		\$ 129,428	
13	Downtown 10% Subsidy	\$ 1,775	\$ 1,775		
14	RPR Tariff	\$ 20,076,641			\$ 20,076,641
15	Act 73 Income Tax Credit	\$ 258,121	\$ 258,121		
16	Other Subsidy Categories				
17	Public Lighting	\$ 93,241,901	\$ 93,241,901		
18	Energy Commission	\$ 5,800,000	\$ 5,800,000		
19	Subtotal - Subsidies	\$ 174,112,921	\$ 136,943,067		
20	Unquantified PREPA Claimed Subsidies				
21	Load-Retention Rider	ibid			
22	Contribution in Lieu of Taxes	\$ 51,703,821	\$ 51,703,821		
23	TOTALS CILT and Subsidies	\$ 225,896,742	\$ 188,726,888	\$ 129,428	\$ 37,040,425
24					
25	Categories:				
26	Public Lighting	\$ 93,241,901 [1]	\$ 93,241,901	\$ -	\$ -
27	Contribution in Lieu of Taxes	\$ 51,783,821 [1]	\$ 51,783,821	\$ -	\$ -
28	Special Customer Subsidies	\$ 75,071,019 [1]	\$ 37,901,166	\$ 129,428	\$ 37,040,425
29	SUBTOTAL	\$ 220,096,741 [1]	\$ 182,926,888	\$ 129,428	\$ 37,040,425
30	Energy Commission	\$ 5,800,000	\$ 5,800,000	\$ -	\$ -
31	TOTALS	\$ 225,896,741	\$ 188,726,888 [2]	\$ 129,428	\$ 37,040,425
32					
33	DIFFERENCE, COMMISSION ADJUSTED VS. PREPA FILED		\$ (37,169,053)	\$ 37,169,053	
			Col.B - Col.A Total	Cols. C & D Totals	

Notes and Source

Col.A: Commission Advisor Paul Chernick Report, page 87, Table 9, Summary of Characteristics of PREPA-Claimed Subsidies

[1] Also see Commission Attachment 4, page 1, for PREPA's as-filed amounts

Col.B: Commission Adjusted Subsidies

[2] Compare line 33 column B Total with
Commission Adjusted Subsidies amount per Attachment 1, column D

\$ 188,726,572

Difference (rounding) 1,316

Percent difference 0.0007%

Col.C: Reclassified expense, see Commission Attachment 3, page 10

Col.D: PREPA Double-Count removed, see Commission Attachment 3, page 4